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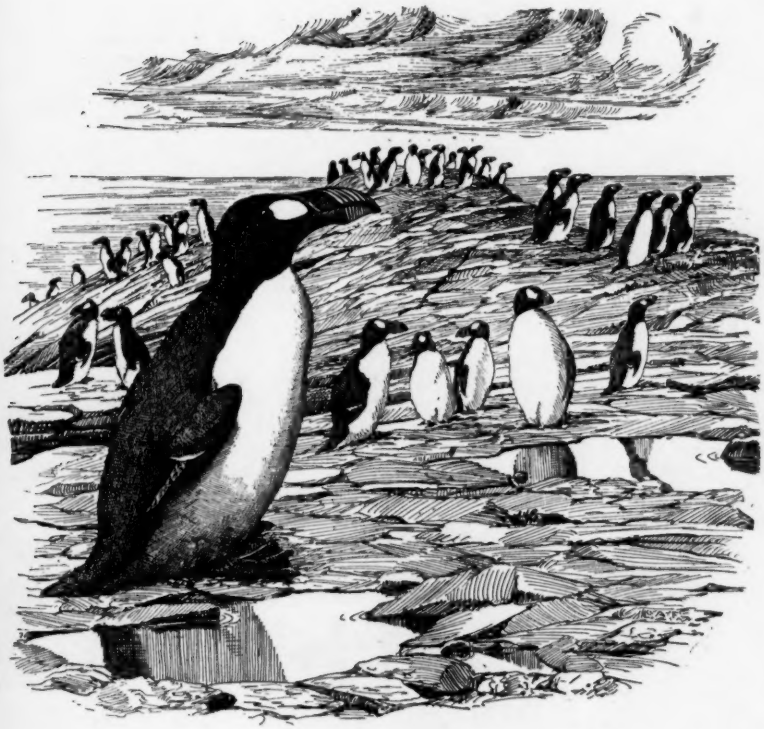
The Auk

A Quarterly Journal of Ornithology

EDITOR
WITMER STONE



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CLARKE, WILLIAM EAGLE, Royal Scottish Museum, Edinburgh.....1889
DALGLEISH, JOHN J., Brankston Grange, Bogside Station, Alloa, Scotland.....1883
DOLE, SANFORD B., Honolulu, Hawaiian Islands.....1888
ECHT, ADOLPH BACHOFEN VON, Nussdorf, near Vienna.....1883
EVANS, ARTHUR HUMBLE, 9 Harvey Road, Cambridge, England.....1899
FEILDEN, Col. HENRY WEMYS, Burwash, Sussex, England.....1884
FERRARI-PEREZ, Prof. FERNANDO, Tacubaya, D. F., Mexico.....1885
FREKE, PERCY EVANS, Southpoint, Limes Road, Folkstone, Kent, England.....1883
FÜRBRINGER, Prof. MAX, Director Anatom. Institute, University of Heidelberg, Heidelberg, Germany.....1891
GADOW, Dr. HANS, University Museum of Zoology, Cambridge, England.....1884

GIRTANNER, Dr. A., St. Galle, Switzerland.....1884
GODWIN-AUSTEN, Lieut.-Col. HENRY HAVERSHAM, Nore, Hascombe, Godalming, Surrey, England.....1884
GOELDI, Prof. Dr. EMIL A., Zieglerstrasse 36, Bern, Switzerland.....1903
GRANDIDIER, ALFRED, 6 Rond-Point des Champs Elysées, Paris.....1883
GURNEY, JOHN HENRY, Keswick Hall, Norwich, England.....1883
HARTING, JAMES EDMUND, Edgewood, Weybridge, Surrey, England..1883
HENNICKE, Dr. CARL R., Gera, Reuss, Germany.....1907
HENSON, HARRY V., Yokohama.....1888
HERMAN, OTTO, Budapest, Hungary.....1908
HUDSON, WILLIAM HENRY, Tower House, St. Luke's Road, Westbourne Park, London, W.....1895
KRUKENBERG, Dr. E. F. W., Würzburg, Germany.....1884
KRÜPER, Dr. THEOBALD J., University Museum, Athens, Greece....1884
LEGGE, Col. WILLIAM V., Cullenswood House, St. Mary's, Tasmania..1891
LE SOUËF, DUDLEY, Zoölogical Gardens, Melbourne, Australia.....1911
MACFARLANE, RODERICK, Winnipeg, Manitoba.....1886
MADARÁSZ, Dr. JULIUS VON, National Museum, Budapest, Hungary.1884
MATHEWS, GREGORY M., Langley Mount, Watford, Herts, England..1911
MENZBIER, Prof. Dr. MICHAEL, Imperial Society of Naturalists, Moscow.....1884
MILLAIS, JOHN GUILLE, Compton's Brow, Horsham, Sussex, England.1911
NAMIYE, M., Tokio.....1886
NICHOLSON, FRANCIS, The Knoll, Windermere, Westmoreland, England.....1884
NORTH, ALFRED J., Australian Museum, Sydney, New South Wales..1902
OGILVIE-GRANT, WILLIAM ROBERT, British Museum (Nat. Hist.), Cromwell Road, London, S. W.....1899
PALMÉN, Dr. J. T., Helsingfors, Finland.....1883
RAMSEY, E. P., Sydney, New South Wales.....1884
RINGER, FREDERIC, Nagasaki.....1888
SCLATER, WILLIAM LUTLEY, 10 Sloane Court, Chelsea, London, S. W..1906
SUSHKIN Dr. PETER, University, Kharkov, Russia.....1903
THEEL, Dr. HJALMAR, University of Upsala, Upsala, Sweden.....1884
TSCHUSI ZU SCHMIDHOFFEN, VICTOR, RITTER VON, Villa Tännenhof, bei Hallein, Salzburg, Austria.....1884
VAN OORT EDWARD DANIEL, Museum Nat. Hist., Leyden, Holland..1913
WATERHOUSE, F. H., 3 Hanover Square, London, W.....1889
WINGE, Dr. HERLUF, University Zoölogical Museum, Copenhagen...1903
WORCESTER, Prof. DEAN C., Manila, P. I.....1903
ZELEDON, Don José C., San José, Costa Rica.....1884

MEMBERS.

ALLEN, ARTHUR A., 707 East State St., Ithaca, N. Y.....(1909)1914
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ALLEN, Dr. GLOVER M., 234 Berkeley St., Boston, Mass.....(1896)1904
ANDERSON, DR. RUDOLPH M., 901 Virginia St., Sioux City, Ia...(1907)1914
ATTWATER, H. P., 2120 Genesee St., Houston, Texas.....(1891)1901
BAILEY, VERNON, 1834 Kalorama Ave., Washington, D. C....(1887)1901
BAILEY, Mrs. VERNON, 1834 Kalorama Ave., Washington, D. C.(1885)1901
BAILY, WILLIAM L., Ardmore, Pa.....(1885)1901
BARBOUR, Prof. ERWIN H., Univ. of Nebraska, Lincoln, Neb...(1892)1903
BARTSCH, PAUL, Smithsonian Inst., Washington, D. C.....(1896)1902
BERGTOLD, DR. W. H., 1159 Race St., Denver, Colo.....(1889)1914
BOND, FRANK, 3127 Newark St., Cleveland Park, Washington, D. C. (1887)1901
BOWLES, JOHN HOOPER, Tacoma, Wash.....(1891)1910
BRAISLIN, Dr. WILLIAM C., 556 Washington Ave., Brooklyn, N. Y.(1894)1902
BROOKS, ALLAN, Okanagan Landing, B. C.....(1902)1909
BRYAN, WILLIAM ALANSON, College of Hawaii, Honolulu, Hawaiian Islands .....(1898)1901
BURNS, FRANK L., Berwyn, Pa.....(1891)1901
BUTLER, AMOS W., 52 Downey Ave., Irvington, Indianapolis, Ind.(1885)1901
CAMERON, E. S., Marsh, Montana.....(1903)1910
CHAMBERS, W. LEE, Eagle Rock, Cal.....(1907)1913
CLARK, AUSTIN HOBART, 1726 18th St., N. W., Washington, D. C.(1899)1901
CLARK, Prof. HUBERT LYMAN, Museum of Comparative Zoölogy, Cambridge, Mass.....(1886)1902
DAGGETT, FRANK S., 2833 Menlo Ave., Los Angeles, Cal.....(1889)1901
DAWSON, WILLIAM LEON, Santa Barbara, Cal.....(1895)1905
DEANE, WALTER, 29 Brewster St., Cambridge, Mass.....(1897)1901
DEARBORN, NED, Linden, Md.....(1902)1907
EATON, ELON HOWARD, Hobart College, Geneva, N. Y.....(1895)1907
EVERMANN, Prof. BARTON W., Bureau of Fisheries, Washington, D. C.....(1883)1901
FINLEY, WILLIAM L., 651 East Madison St., Portland, Ore.....(1904)1907
FLEMING, JAMES H., 267 Rusholme Road, Toronto, Ontario...(1893)1901
GAULT, BENJAMIN TRUE, Glen Ellyn, Ill.....(1885)1903
GOLDMAN, EDWARD ALFONSO, Biological Survey, Washington, D. C. (1897)1902
HOFFMANN, RALPH, 11 W. Concord Ave., Kansas City, Mo...(1893)1901
HOLLISTER, NED, U. S. Nat. Museum, Washington, D. C.....(1894)1910
HOWELL, ARTHUR H., 2919 S. Dakota Ave., Washington, D. C..(1889)1902
JACOBS, J. WARREN, 404 S. Washington St., Waynesburg, Pa..(1889)1904
JEFFRIES, WILLIAM AUGUSTUS, 11 Pemberton Square, Boston, Mass. (1883)1901
JOB, Rev. HERBERT K., 291 Main St., West Haven, Conn.....(1896)1901

JORDAN, Prof. DAVID STARR, Stanford University, Cal.....(1885)1901
KENNARD, F. H., Dudley Road, Newton Centre, Mass.....(1892)1912
KNOWLTON, F. H., U. S. Nat. Mus., Washington, D. C.....(1883)1902
MACKAY, GEORGE H., 304 Bay State Road, Boston, Mass....(1890)1901
MAILLIARD, JOHN W., 300 Front St., San Francisco, Cal.....(1895)1901
MILLER, Mrs. OLIVE THORNE, 5928 Hays Ave., Los Angeles, Cal.(1887)1901
MORRIS, GEORGE SPENCER, Olney, Philadelphia, Pa.....(1887)1903
MORRIS, ROBERT O., 82 Temple St., Springfield, Mass.....(1888)1904
MURDOCH, JOHN, 16 High Rockway. Allston, Mass.....(1883)1901
NORTON, ARTHUR H., Mus. Nat. Hist., 22 Elm St., Portland, Maine (1890)1902
PEARSON, T. GILBERT, 1974 Broadway, New York City.....(1891)1902
PENNOCK, CHARLES J., Kennett Square, Pa.....(1888)1901
PHILLIPS, JOHN C., Wenham, Mass.....(1904)1912
PREBLE, EDWARD A., 3027 Newark St., Washington, D. C.....(1892)1901
RATHBUN, SAMUEL F., 217 14th Ave., N., Seattle, Wash.....(1893)1902
RHOADS, SAMUEL N., 81 Haddon Ave., Haddonfield, N. J.....(1885)1901
RILEY, JOSEPH H., U. S. National Museum, Washington, D. C..(1897)1905
RIVES, Dr. WILLIAM C., 1702 Rhode Island Ave., Washington, D. C. (1885)1901
ROBINSON, Col. WIRT, U. S. A., West Point, N. Y.....(1897)1901
SETON, ERNEST THOMPSON, Cos Cob, Conn.....(1883)1901
*SHERMAN, Miss ALTHEA R., McGregor, Iowa.....(1907)1912
STEPHENS, FRANK, R. F. D. No. 2, San Diego, Cal.....(1883)1901
STRONG, Dr. REUBEN M., Dept. Zoöl., Univ. of Chicago, Chicago, Ill. (1889)1903
SWALES, BRADSHAW HALL, Grosse Isle, Mich.....(1902)1909
SWARTH, HARRY S., Mus. Vert. Zool., University of California, Berkeley, Cal.....(1900)1909
TAVERNER, PERCY A., Victoria Memorial Museum, Ottawa, Canada (1902)1909
THAYER, JOHN ELIOT, Lancaster, Mass.....(1898)1905
TODD, W. E. CLYDE, Carnegie Museum, Pittsburgh, Pa.....(1890)1901
TOWNSEND, CHARLES H., Aquarium, Battery Park, New York City (1883)1901
TOWNSEND, Dr. CHARLES WENDELL, 76 Marlborough St., Boston, Mass.....(1901)1905
TROTTER, Dr. SPENCER, Swarthmore College, Swarthmore, Pa..(1888)1901
WARREN, EDWARD ROYAL, 20 West Caramillo St., Colorado Springs, Colo.....(1902)1910
WAYNE, ARTHUR T., Mt. Pleasant, S. C.....(1905)1909
WETMORE, ALEX., Biological Survey, Washington, D. C.....(1908)1912
WOLCOTT, Dr. ROBERT H., Univ. of Nebraska, Lincoln, Neb..(1901)1903
WOOD, NORMAN A., Museum Univ. of Mich., Ann Arbor, Mich..(1904)1912
WRIGHT, Mrs. MABEL OSGOOD, Fairfield, Conn.....(1895)1901

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* Life Member.

ASSOCIATES.

ABBOTT, CLINTON GILBERT, 153 W. 73rd St., New York City.....1898
ADAMS, BENJAMIN, 476 5th Ave., New York City.....1911
ADAMS, WALLACE, Los Molinos, Cal.....1901
ADAMS, Dr. Z. B., 42 Cottage Farm Rd., Brookline, Mass.....1908
AIKEN, CHARLES EDWARD HOWARD, 12 Pikes Peak Ave., Colorado Springs, Colo.....1898
AIKEN, Hon. JOHN, Superior Court, Court House, Boston, Mass....1905
AKELEY, CARL E., American Museum Nat. Hist., New York City...1913
ALEXANDER, Miss ANNIE M., 92 Sea View Ave., Piedmont, Cal.....1911
ALLEN, MARY P., 206 Moon St., Hackettstown, N. J.....1913
AMES, JOHN S., North Easton, Mass.....1913
ANDERSON, Mrs. J. C., Great Barrington, Mass.....1903
ANDREWS, ROY C., Amer. Mus. Nat. Hist., New York City.....1906
ANGELL, WALTER A., 33 Westminster St., Providence, R. I.....1901
ANTHONY, H. E., Amer. Mus. Nat Hist., New York City.....1911
ANTHONY, Mrs. P. REED, 113 Commonwealth Ave., Boston, Mass....1913
ARCHBOLD, JOSEPH A., 107 Hodge Ave., Buffalo, N. Y.....1903
ARMSTRONG, EDWARD E., 207 N. Michigan Ave., Chicago, Ill.....1904
ARMSTRONG, Mrs. E. H., Hyde Park, Boston, Mass.....1912
ARNOLD, EDWARD, Grand Trunk R'y., Montreal, Quebec.....1894
ARNOLD, F. E., 284 Pleasant St., East Providence, R. I.....1909
ARNOLD, Dr. W. W., 504 N. Nevada Ave., Colorado Springs, Colo...1910
AVIS, EDWARD, Box 56, Enfield, Conn.....1908
BABCOCK, DEAN, Estes Park, Colo.....1911
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BAGG, EGBERT, 406 Genesee St., Utica, N. Y.....1883
BAILEY, Dr. B. H., 1417 1st Ave., Cedar Rapids, Ia.....1913
BAILEY, Prof. G. A., Geneseo, N. Y.....1910
BAILEY, HAROLD H., 320 50th St., Newport News, Va.....1903
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BAKER, FRANK C., Chicago Acad. Sciences, Chicago, Ill.....1907
BAKER, JOHN H., 7 Holyoke Place, Cambridge, Mass.....1911
BALDWIN, ROGER N., 600–911 Locust St., St. Louis, Mo.....1904
BALES, Dr. BLENN R., 149 W. Main St., Circleville, Ohio.....1907
BALL, Mrs. BENNET F., Oakville, Conn.....1905
BALL, DAVID S., 622 W. 113 St., New York City.....1913
BALL, Miss HELEN AUGUSTA, 43 Laurel St., Worcester, Mass.....1893
BALL, JAS. P., 5001 Frankford Ave., Philadelphia, Pa.....1911
BANKS, Miss MARTHA, Westport, Conn.....1911
BARBOUR, Rev. ROBERT, Y. M. C. A., Montclair, N. J.....1902
BARBOUR, Dr. THOMAS, Mus. of Comp. Zoölogy, Cambridge, Mass...1903

BARNARD, Judge JOB, 1306 Rhode Island Ave., Washington, D. C.....1886
BARNES, CLAUDE T., Box 1199, Salt Lake City, Utah.....1908
BARNES, Hon. R. MAGOON, Lacon, Ill.....1889
BARRETT, CHAS. H. M., Biological Survey, Washington, D. C.....1912
BARRETT, HAROLD LAWRENCE, 704 Centre St., Jamaica Plain, Mass...1909
BARRY, Miss ANNA K., 5 Bowdoin Ave., Dorchester, Mass.....1907
BARTLETT, Miss MARY F., 227 Commonwealth Ave., Boston, Mass...1912
BARTLETT, WM. M., 410 Hotel Princeton, Allston, Mass.....1913
BARTRAM, EDWIN B., 131 Beech Tree Lane, Wayne, Pa.....1913
BATTEN, GEORGE, JR., 381 Fourth Ave., New York City.....1914
BATTEN, GEO., 93 Union St., Montclair, N. J.....1911
BAYNARD, OSCAR E., Box 328, Clearwater, Fla.....1910
BAYNES, ERNEST H., Meriden, N. H.....1912
BECK, ROLLO HOWARD, San José, R. D. 21, Cal.....1894
BEERS, HENRY W., 91 Denver Ave., Bridgeport, Conn.....1895
BELL, Prof. W. B., Agricultural College, N. D.....1912
BENNETT, Rev. GEO., Iowa City, Ia.....1913
BENNETTS, WILLIAM J., 1941 1st St. N. W., Washington, D. C.....1901
BERIER, DE LAGNEL, 171 Monte Vista Place, Ridgewood, N. J.....1885
BERRY, Mrs. S. JENNIE, 633 Waterloo St., London, Ontario.....1909
BETTS, NORMAN DE WITT, Forest Products Lab., Madison, Wis.....1908
BICKNELL, Mrs. F. T., 419 N. Broadway, Los Angeles, Cal.....1913
BIDDLE, Miss EMILY WILLIAMS, 2201 Sansom St., Philadelphia, Pa..1898
BIGELOW, ALBERT F., 84 State St., Boston, Mass.....1910
BIGELOW, HENRY BRYANT, Concord, Mass.....1897
BIGELOW, HOMER LANE, Old Orchard Road, Chestnut Hill, Mass....1902
BIGELOW, LYMAN F., 80 Winter St., Norwood, Mass.....1914
BIGGLESTONE, HARRY C., 3918 Fourth Ave., Sioux City, Ia.....1913
BIRDSEYE, CLARENCE, Biological Survey, Washington, D. C.....1908
BLACKWELDER, ELIOT, Univ. of Wisconsin, Madison, Wis.....1895
BLAIN, Dr. ALEX. W., Jr., 1105 Jefferson Ave., E., Detroit, Mich...1901
BLAIN, MERRILL W.,1026 N. Coronado St., Los Angeles, Cal.....1910
BLAKE, SIDNEY F., 154 Walnut St., Stoughton, Mass.....1910
BLATCHLEY, W. S., 1530 Park Ave., Indianapolis, Ind.....1895
BLOOMFIELD, Mrs. C. C., 723 Main St., W., Jackson, Mich.....1901
BOARDMAN, Miss E. D., 416 Marlborough St., Boston, Mass.....1906
BODINE, DONALDSON, 4 Mill Place, Crawfordsville, Ind.....1913
BOGARDUS, Miss CHARLOTTE, Elm St., Coxsackie, N. Y.....1909
BOGERT, WILLIAM S., 1000 Garden St., Bellingham, Wash.....1904
BOLLES, Mrs. FRANK, 6 Berkeley St., Cambridge, Mass.....1912
BOLT, BENJAMIN FRANKLIN, 1421 Prospect Ave., Kansas City, Mo...1909
BOND, HARRY L., Lakefield, Minn.....1908
BONFILS, F. G., 1003 Corona St., Denver, Colo.....1912
BOOTH, SHERMAN M., Glen Cove, Ill.....1911
BORDEN, SPENCER, Fall River, Mass.....1912
BORLAND, WM. G., 14 Wall St., New York City.....1911

BORNEMAN, HENRY S., 1613 Dyre St., Frankford, Philadelphia, Pa....1912
BOSSON, CAMPBELL, 722 Tremont Bldg., Boston, Mass.....1906
BOUDINOT, Mrs. H. R., 302 Rusholme St., Davenport, Iowa.....1909
BOURNE, THOS. L., Hamburgh, N. Y.....1914
BOWDISH, B. S., Demarest, N. J.....1891
BOWDISH, Mrs. B. S., Demarest, N. J.....1902
BOWDITCH, HAROLD, 636 Beacon St., Boston, Mass.....1900
BOWDITCH, JAMES H., 903 Tremont Bldg., Boston, Mass.....1913
BOYD, Mrs. HARRIET, 17 Marsh St., Dedham, Mass.....1912
BOYNTON, CHAS. T., 1005 South Sheridan Rd., Highland Park, Ill....1912
BRACKEN, Mrs. HENRY MARTYN, 1010 Fourth St., S. E., Minneapolis, Minn.....1897
BRADFORD, MOSES B. L., Concord Public Library, Concord, Mass.....1889
BRADLEE, THOMAS STEVENSON, Somerset Club, Boston, Mass.....1902
BRANDRETH, COURTENAY, Ossining, N. Y.....1905
BRANDRETH, FRANKLIN, Ossining, N. Y.....1889
BRANTLEY, WILLIAM FOREACRE, Blackshear, Ga.....1912
BREWSTER, EDWARD EVERETT, 316 East C St., Iron Mountain, Mich.1893
BREWSTER, Mrs. WILLIAM, 145 Brattle St., Cambridge, Mass.....1912
BRIDGE, EDMUND, 52 Wyman St., West Medford, Mass.....1910
BRIDGE, Mrs. EDMUND, 52 Wyman St., West Medford, Mass.....1902
BRIGHT, Miss ANNA L., Pottsville, Pa.....1903
BRIMLEY, H. H., Raleigh, N. C.....1904
BRISTOL, JOHN I. D., 1 Madison Ave., New York City.....1907
BRITTEN, G. S., 302 University Bldg., Syracuse, N. Y.....1913
BROCK, Dr. HENRY HERBERT, 687 Congress St., Portland, Me.....1894
BROCKWAY, ARTHUR W., Hadlyme, Conn.....1912
BROOKS, Rev. EARLE AMOS, 419 N. River Ave., Weston, W. Va.....1892
BROOKS, GORHAM, 37½ Beacon St., Boston, Mass.....1912
BROOKS, Miss MARTHA W., Petersham, Mass.....1913
BROOKS, WINTHROP S., Milton. Mass.....1907
BROWN, Miss ANNIE H., 31 Maple St., Stoneham, Mass.....1909
BROWN, ARTHUR L., 119 Park St., West Roxbury, Mass.....1908
BROWN, C. EMERSON, 44 Sudbury St., Boston, Mass.....1908
BROWN, EDWARD J., U. S. Nat. Museum, Washington, D. C.....1891
BROWN, H. A., 40 Talbot St., Lowell, Mass.....1912
BROWN, Mrs. HENRY T., Winchester, Mass.....1912
BROWN, HUBERT H., Beamsville, Ontario.....1889
BROWN, Mrs. J., Jr., 71 Bay State Road, Boston, Mass.....1913
BROWN, PHILIP G., 85 Vaughan St., Portland, Me 1911
BROWN, STEWARDSON, 20 E. Penn St., Germantown, Philadelphia, Pa..1895
BROWN, WM. JAMES, 250 Oliver Ave., Westmount, Quebec.....1908
BROWNING, WM. HALL, 16 Cooper Square, New York City.....1911
BRUEN, FRANK, 65 Prospect St., Bristol, Conn.....1908
BRYANT, HAROLD CHILD, Univ. of California, Berkeley, Cal.....1913
BUBIER, GEO. M., 185 Franklin St., Lynn, Mass.....1911

BURBANK, CHAS. O., 48 Glenwood Ave., Newton Centre, Mass.....1912
BURCKES, Mrs. J. W., 36 Curve St., Waltham, Mass.....1912
BURGESS, JOHN KINGSBURY, Chestnut St., Dedham, Mass.....1898
BURKE, WM. BARDWELL, 130 Spring St., Rochester, N. Y.....1901
BURLEIGH, THOS. D., 825 N. Wigley Ave., Pittsburg, Pa.....1913
BURNETT, WILLIAM L., State Agric. College, Fort Collins, Colo.....1895
BURNHAM, JOHN BIRD, 111 Broadway, New York City.....1912
BURT, H. P., 355 Union St., New Bedford, Mass.....1908
BURTCH, VERDI, Branchport, N. Y.....1903
BUXBAUM, Mrs. CLARA E., 4822 Grand Boulevard, Chicago, Ill.....1895
CABOT, LOUIS, Brookline, Mass.....1904
CADUC, EUGENE E., 563 Massachusetts Ave., Boston, Mass.....1910
CALLENDER, JAMES PHILLIPS, 32 Broadway, New York City.....1903
CALVERT, J. FLETCHER, 380 Dufferin Ave., London, Ont.....1912
CAMPBELL, CLARA D., 1253 Beacon St., Brookline, Mass.....1913
CARPENTER, Rev. CHARLES KNAPP, 311 Park St., Elgin, Ill.....1894
CARPENTER, GEORGE I., 129 Dean St., Brooklyn, N. Y.....1907
CARRIGER, H. W., 5185 Trask St., Fruitvale Station, Oakland, Cal....1913
CARTER, JOHN D., Lansdowne, Pa.....1907
CASE, CLIFFORD M., 7 Holcomb St., Hartford, Conn.....1892
CASH, HARRY A., 54 Spring St., Pawtucket, R. I.....1898
CASKEY, ROBERT C., 58 Mills St., Morristown, N. J.....1908
CATLIN, JAMES P., Ottawa, Ill.....1905
CHAMBERLAIN, CHAUNCY W., 36 Lincoln St., Boston, Mass.....1885
CHAPIN, Prof. ANGIE CLARA, 25 Freeman Cottage, Wellesley, Mass...1896
CHAPIN, JAMES, 330 W. 95th St., New York City.....1906
CHAPMAN, Mrs. F. M., Englewood, N. J.....1908
CHAPMAN, ROY, 2316 Pierce Ave., St. Anthony Park, St. Paul, Minn...1911
CHASE, SIDNEY, Nantucket, Mass.....1904
CHEESMAN, M. R., 55 W. 4th St., S., Salt Lake City, Utah.....1911
CHIPMAN, GRACE E., Sandwich, Mass.....1912
CHRISTIE, EDWARD H., 5069 Kensington Ave., St. Louis, Mo.....1910
CHRISTY, BAYARD H., 403 Frederick Ave., Sewickley, Pa.....1901
CLARK, Mrs. ANNE M. L., Box 153, Lancaster, Mass.....1912
CLARK, B. PRESTON, Box 2862, Boston, Mass.....1907
CLARK, CLARENCE H., Lubec, Me.....1913
CLARK, EDWARD B., Hamilton Hotel, Washington, D. C.....1900
CLARK, H. WALTON, Fairport, Ia.....1913
CLARK, JOSIAH H., 238 Broadway, Paterson, N. J.....1895
CLARKE, CHARLES E., 11 Chetwynd Road, Tufts College, Mass.....1907
CLARKE, Miss HARRIET E., 9 Chestnut St., Worcester, Mass.....1896
CLARKE, ROWENA A., Kirkwood Branch, St. Louis, Mo.....1906
CLARKE, Dr. WM. C., Tenafly, N. J.....1909
CLAY, CHAS. IRVIN, Box 353, Eureka, Cal.....1911
CLEAVES, HOWARD H., Public Museum, New Brighton, N. Y.....1907
CLEVELAND, Dr. CLEMENT, 925 Park Ave., New York City.....1903

CLEVELAND, Miss LILIAN, Woods Edge Road, West Medford, Mass..1906
COALE, HENRY K., Highland Park, Ill.....1883
COBB, Miss ANNA E., 322 Broadway, Providence, R. I.....1913
COBB, Miss ANNIE W., 301 Massachusetts Ave., Arlington, Mass.....1909
COBB, STANLEY, 340 Adams St., Milton, Mass.....1909
CODMAN, JOHN S., Quail St., West Roxbury, Mass.....1908
COFFIN, Miss LUCY V. BAXTER, 3232 Groveland Ave., Chicago, Ill. 1905
COGGINS, HERBERT L., 2929 Piedmont Ave., Berkeley, Cal.....1913
COLBURN, ALBERT E., 806 S. Broadway, Los Angeles, Cal.....1891
COLE, Dr. LEON J., College of Agric., Univ. of Wis., Madison, Wis...1908
COLVIN, WALTER S., Osawatomie, Kan.....1896
COMMONS, Mrs. F. W., 2437 Park Ave., Minneapolis, Minn.....1902
CONEY, Mrs. GEO. H., 859 Prospect Ave., Hartford, Conn.....1906
COOK, Miss LILIAN GILLETTE, 165 W. 82d St., New York City.....1899
COPE, FRANCIS R., Jr., Dimock, Pa.....1892
COPELAND, Dr. ERNEST, 141 Wisconsin St., Milwaukee, Wis.....1897
COPELAND, MANTON, 88 Federal St., Brunswick, Me.....1900
COREY, Miss ALICE F., 1111 Park Ave., Plainfield, N. J.....1910
COULTER, STANLEY, Lafayette, Ind.....1912
CRAFT, Miss LAURA F., Glen Cove, N. Y.....1912
CRAIG, WALLACE, Orono, Me.....1912
CRAIGMILE, Miss ESTHER A., 24 S. Grant St., Hinsdale, Ill.....1910
CRAM, R. J., 26 Hancock Ave., W., Detroit, Mich.....1893
CRANDALL, C. W., 10 Third St., Woodside, N. Y.....1891
CRANE, Miss CLARA L., Dalton, Mass.....1904
CRANE, Mrs. ZENAS, Dalton, Mass.....1904
CREHORE, FREDERIC M., Box 1252, Boston, Mass.....1913
CRESSY, Mrs. N. S., 25 Quaker Lane, West Hartford, Conn.....1912
CRITTENDEN, VIOLA E., 43 Lovett St., Beverly, Mass.....1913
CROCKER, Mrs. DAVID, Barnstable, Mass.....1912
CROCKER, Mrs. EMMONS, 48 Mechanics St., Fitchburg, Mass.....1912
CROSBY, MAUNSELL S., Grasmere, Rhinebeck, N. Y.....1904
CULVER, DELOS E., Addingham, Pa.....1913
CUMMINGS, Miss EMMA G., 16 Kennard Road, Brookline, Mass.....1903
CURRIE, ROLLA P., Dept. of Agriculture, Washington, D. C.....1895
CURRIER, B. H., 79 Milk St., Boston, Mass.....1913
CURRIER, EDMONDE SAMUEL, 416 E. Chicago St., St. Johns, Ore.....1894
CUSHMAN, Miss ALICE, 919 Pine St., Philadelphia, Pa.....1910
CUTLER, Mrs. ANNIE F., 117 Washington Ave., Chelsea, Mass.....1908
DANA, Miss ADA, 488 Centre St., Newton, Mass.....1912
DANE, Mrs. ERNEST B., Chestnut Hill, Mass.....1912
DANIELSON, Miss EDNA H., R. F. D. 3, Goodhue, Minn.....1910
DART, Dr. LESLIE O., Curtis Court, Minneapolis, Minn.....1898
DAVENPORT, Mrs. ELIZABETH B., Lindenhurst, Brattleboro, Vt.....1898
DAVIDSON, Mrs. F. S., 1302 W., S. Grand Ave., Springfield, Ill.....1912
DAVIS, CHARLES H., 515 Michigan Ave., Saginaw, Mich.....1906

DAY, CHESTER SESSIONS, 15 Chilton Road, West Roxbury, Mass....1897
DAY, FRANK MILES, Mt. Airy, Philadelphia, Pa.....1901
DEAN, R. H., 300 St. Vincent Ave., St. Louis, Mo.....1913
DEANE, DANIEL WHITMAN, Box 425, Fairhaven, Mass.....1913
DEANE, GEORGE CLEMENT, 80 Sparks St., Cambridge, Mass.....1899
DELOACH, R. J. H., University of Ga., Athens, Ga.....1910
DENNIS, DAVID W., Richmond, Ind.....1907
DENSMORE, Miss MABEL, 629 4th St., Red Wing, Minn.....1910
DERBY, RICHARD, 969 Park Ave., New York City.....1898
DERICKSON, Mrs. GEO. P., 1760 Hennepin Ave., Minneapolis, Minn..1910
DEVINE, J. L., 5319 Woodlawn Ave., Chicago, Ill.....1903
DEWEY, Dr. CHARLES A., 78 Plymouth Ave., Rochester, N. Y.....1900
DICE, LEE RAYMOND, Prescott, Wash.....1909
DICKERSON, Miss MARY C., Am. Mus. Nat. Hist., New York City...1908
DICKEY, DONALD R., Box 701, Pasadena, Cal.....1907
DICKEY, SAMUEL S., Waynesburg, Pa.....1905
DILLE, FREDERICK M., 2927 W. 28th Ave., Denver, Colo.....1892
DIMOCK, GEO. E., Jr., 907 N. Broad St., Elizabeth, N. J.....1911
DIONNE, C. E., Laval University, Quebec, Que.....1893
DIXON, FREDERICK J., 111 Elm Ave., Hackensack, N. J.....1891
DODSON, JOSEPH H., 534 Sheridan Road, Evanston, Ill.....1909
DOLBEAR, Miss KATHERINE, Clarke University, Worcester, Mass.....1912
DORN, Prof. L., Concordia College, Fort Wayne, Ind.....1912
DOUGHERTY, Gen. WILLIAM E., 1409 E. 14th St., Fruitvale, Cal.....1890
DOWNHOUR, Miss ELIZABETH, 203 Talbott Ave., Indianapolis, Ind.....1913
DRAPER, J. SUMNER, Readville, Mass.....1908
DROWNE, Dr. FREDERICK PEABODY, Warren, R. I.....1899
DRUMMOND, Miss MARY, Spring Lane, Lake Forest, Ill.....1904
DU BON, JAMES L., Windsor Locks, Conn.....1909
DUDLEY, SARAH H., Lyman School, Berlin, Mass.....1912
DUGMORE, ARTHUR RADCLYFFE, Newfoundland, N. J.....1899
DULL, Mrs. A. P. L., 211 N. Front St., Harrisburg, Pa.....1900
DUNBAR, W. LINFRED, U. M. C. Co., Bridgeport, Conn.....1906
DUNN, Miss HARRIET A., Box 45, Athol, Mass.....1909
DURFEE, OWEN, Box 125, Fall River, Mass.....1887
DURYEA, Miss ANNIE B., 62 Washington St., Newark, N. J.....1911
DWIGHT, Dr. EDWIN W., 119 Pearl St., Boston, Mass.....1911
DYCHE, Prof. L. L., Pratt, Kansas.....1886
DYER, EDWARD T., Southampton, N. Y.....1911
DYKE, ARTHUR CURTIS, 205 Summer St., Bridgewater, Mass.....1902
EARLE, Miss ELEANOR P., Palma Sola, Fla.....1910
EARLY, CHAS. H., 185 Fairmount Ave., Hyde Park, Mass.....1912
EASTMAN, FRANCIS B., Plattsburg Barracks, N. Y.....1909
EASTMAN, HARRY D., 24 State St., Framingham, Mass.....1891
EATON, Miss MARY S., 8 Monument St., Concord, Mass.....1909
EATON, SCOTT HARRISON, North Bend, Ohio.....1912

EDSON, JOHN M., Marietta Road, Bellingham, Wash.....1886
EDWARDS, PHOEBE P., Brookline, Mass.....1912
EDWARDS, VINAL N., Box 36, Woods Hole, Mass.....1912
EHINGER, Dr. CLYDE E., 100 Rosedale Ave., West Chester, Pa.....1904
EICHE, AUGUST, 1133 O St., Lincoln, Neb.....1902
EIFRIG, Rev. C. W. GUSTAVE, Concordia Teachers College, Oak Park, Ill.....1913
EIMBECK, Dr. A. F., New Haven, Mo.....1906
EKBLAW, WALTER ELMER, care of G. Ekblaw, Rantoul, Ill.....1911
ELDRIDGE, ARTHUR S., South Lincoln, Mass.....1912
ELLIOT, Mrs. J. W., 124 Beacon St., Boston, Mass.....1912
ELLIOTT, Dr. E. EARL, 63 William St., Lyons, N. Y.....1912
ELLS, GEORGE P., Norwalk, Conn.....1904
EMMET, CHRISTOPHER TEMPLE, Stony Brook, N. Y.....1909
EMMET, ROBERT T., New Rochelle, N. Y.....1904
EMMONS, RUPERT A., 17 T St., N. E., Washington, D. C.....1913
EMORY, Mrs. MARY DILLE, 156 Foundry St., Morgantown, W. Va...1899
ENDERS, JOHN O., 17 Highland St., Hartford, Conn.....1904
EVANS, Miss NEVADA, 3637 10th Ave., S., Minneapolis, Minn.....1910
EVANS, WILLIAM B., 205 E. Central Ave., Moorestown, N. J.....1897
FARLEY, JOHN A., 105 Summer St., Malden, Mass.....1904
FARR, MARCUS S., Princeton University, Princeton, N. J.....1900
FARWELL, Mrs. JOHN V., Ardleigh, Lake Forest, Ill.....1896
FAY, S. PRESCOTT, 3 Brimmer St., Boston, Mass.....1907
FELGER, ALVA HOWARD, North Side High School, Denver, Colo.....1898
FELL, Miss EMMA TREGO, 1534 N. Broad St., West Philadelphia, Pa...1903
FELTON, W. R., Lone Tree, Mont.....1910
FERGUSON, Mrs. MARY VAN E., 57 Arlington Ave., Providence, R. I..1912
FERRY, Miss MARY B., 19 Morgan Ave., Norwalk, Conn.....1912
FIELD, EDWARD B., 30 Gillette St., Hartford, Conn.....1898
FIELD, Dr. GEO. W., Sharon, Mass.....1910
FISHER, Miss ELIZABETH WILSON, 2222 Spruce St., Philadelphia, Pa..1896
FISHER, G. CLYDE, American Mus. Nat. Hist., New York City.....1908
FISHER, WALTER T., 45 Fairfax St., Cambridge, Mass.....1907
FLANAGAN, JOHN H., 89 Power St., Providence, R. I.....1898
FLETCHER, Mrs. MARY E., Proctorsville, Vt.....1898
FLOYD, WILLIAM, 84 William St., New York City.....1913
FOLK, JOHN P., 104 Franklin St., Suffolk, Va.....1913
FOOTE, Miss F. HUBERTA, 90 Locust Hill Ave., Yonkers, N. Y.....1897
FORBES, ALEXANDER, Milton, Mass.....1912
FORDYCE, GEO. L., 40 Lincoln Ave., Youngstown, Ohio.....1901
FOWLER, FREDERICK HALL, 221 Kingsley Ave., Palo Alto, Cal.....1892
FOWLER, HENRY W., Acad. Nat. Sciences, Philadelphia, Pa.....1898
FOX, Dr. WILLIAM H., 1826 Jefferson Place, Washington, D. C.....1883
FRANCIS, GEO. A., 1453 Sea View Ave., Bridgeport, Conn.....1911
FRANCIS, NATHANIEL A., 35 Davis Ave., Brookline, Mass.....1913

FRASER, DONALD, Johnstown, N. Y.....1902
FRAZIER, J. F., Audubon, Iowa.....1909
FREEMAN, Miss HARRIET E., 37 Union Park, Boston, Mass.....1903
FRENCH, CHARLES H., Canton, Mass.....1904
FRENCH, Mrs. CHAS. H., Canton, Mass.....1908
FULLER, CLARENCE T., 71 Broadway, New York City.....1907
FULLER, Mrs. ELLA M., Needham, Mass.....1909
FULLER, T. OTIS, Needham, Mass.....1904
FUNKHOUSER, W. D., 415 No. Tioga St., Ithaca, N. Y.....1913
GABRIELSON, IRA N., 206 N. 1st Ave., Marshalltown, Iowa.....1912
GANO, Miss LAURA, 744 National Road, W., Richmond, Ind.....1903
GARDINER, CHARLES BARNES, 5 Minard Place, Norwalk, Ohio.....1903
GARRICK, JAMES P., Jr., Weston, S. C.....1906
GATH, JOHN, Box 234, Torrington, Conn.....1901
GEORGE, Mrs. W. W., 1312 Market St., Parkersburg, W. Va.....1912
GERTKEN, SEVERIN, St. Johns University, Collegeville, Minn.....1912
GIANINI, CHAS. A., Poland, N. Y.....1911
GIBSON, JOHN T., Southborough, Mass.....1912
GIBSON, LANGDON, 5 Union St., Schenectady, N. Y.....1904
GILMAN, M. FRENCH, Sacaton, Arizona.....1907
GLADDING, Mrs. JOHN R., 30 Stimson Ave., Providence, R. I.....1912
GLEASON, ALFRED D., Gleasondale, Mass.....1912
GODSHALL, W. V., 1625 East Fayette St., Syracuse, N. Y.....1912
GOLSAN, LEWIS S., Autaugaville, Ala.....1912
GOODALE, Dr. JOSEPH LINCOLN, 258 Beacon St., Boston, Mass.....1885
GOODRICH, JULIET T., 1210 Astor St., Chicago, Ill.....1904
GORDON, HARRY E., 313 Laburnum Ave., Rochester, N. Y.....1911
GOULD, Dr. ALFRED M., Malden, Mass.....1912
GOULD, JOSEPH E., 5 Clifton St., Norfolk, Va.....1889
GRAHAM, WM. J., Aledo, Ill.....1909
GRANGER, Miss HELEN, Griswoldville, Mass.....1904
GRANGER, WALTER, Amer. Mus. Nat. Hist., New York City.....1891
GRANT, WM. W., 706 E. Seneca St., Ithaca, N. Y.....1910
GRAVES, Mrs. CHARLES B., 66 Franklin St., New London, Conn.....1905
GRAY, Miss ELIZABETH F., 870 High St., Dedham, Mass.....1913
GRAY, Miss ISA E., 5 Chestnut St., Boston, Mass.....1912
GREEN, Miss MARY AMORY, Croton-on-Hudson, N. Y.....1911
GREENOUGH, HENRY VOSE, 23 Monmouth Court, Brookline, Mass.....1909
GREGORY, STEPHEN S., Jr., 1349 Astor St., Chicago, Ill.....1906
GRISCOM, LUDLOW, 21 Washington Sq., N., New York City.....1908
GRONBERGER, S. M., Smithsonian Inst., Washington, D. C.....1909
GROSS, ALFRED O., 17 McKeen St., Brunswick, Me.....1907
GROSVENER, GILBERT H., National Geog. Soc., Washington, D. C.....1913
GUILD, HENRY R., 102 Beacon St., Boston, Mass.....1912
GUTSELL, JAMES S., 301 College Ave., Ithaca, N. Y.....1911
HADLEY, ALDEN H., Monrovia, Indiana.....1906

HALL, FRANK H., Agricultural Experiment Station, Geneva, N. Y...1910
HALL, H. PORTER, Leominster, Mass.....1904
HALLETT, GEO. H., Jr., Haverford College, Haverford, Pa.....1911
HAMILTON, Dr. B. A., Highland Park, Ill.....1909
HANKINSON, THOS. LEROY, Charleston, Ill.....1897
HARDON, Mrs. HENRY W., 315 West 71st St., New York City.....1905
HARDY, JOHN H., Jr., Littleton, Mass.....1905
HARPER, FRANCIS, 555 First Ave., College Point, N. Y.....1907
HARPER, Mrs. GEO. V., 102 Pennsylvania Ave., Wilmington, Del....1910
HARRINGTON, ELIZABETH R., 11 Ave., and 47th St., New York City..1913
HARRIS, HARRY, Kansas City, Mo.....1911
HARRIS, ROY C., 725 N. 10th St., Richmond, Ind.....1911
HART, CHARLES G., Box 47, East Berlin, Conn.....1908
HARVEY, Miss RUTH SAWYER, 1203 Woodland Ave., Cincinnati, Ohio.1902
HASKELL, Miss HELEN P., 1207 Henry St., Alton, Ill.....1905
HASKELL, WM. S., Woolworth Building, New York City.....1913
HATHAWAY, HARRY S., Box 1466, Providence, R. I.....1897
HAVEMEYER, H. O., Jr., Mahwah, N. J.....1893
HAZARD, Hon. R. G., Peace Dale, R. I.....1885
HEIL, CHARLES E., Needham, Mass.....1908
HELME, ARTHUR H., Miller Place, N. Y.....1888
HEMENWAY, Mrs. HARRIET L., Readville, Mass.....1912
HENDERSON, Judge JUNIUS, Boulder, Colo.....1903
HENDRICKSON, W. F., 276 Hillside Ave., Jamaica, N. Y.....1885
HENN, ARTHUR WILBUR, Indiana University, Bloomington, Ind.....1909
HERRICK, FRANCIS H., Adelbert College, Cleveland, Ohio.....1913
HERRICK, HAROLD, 25 Liberty St., New York City.....1905
HERRICK, NEWBOLD L., Cedarhurst, N. Y.....1913
HERSEY, F. SEYMOUR, 6 Maple Ave., Taunton, Mass.....1911
HERSEY, L. J., Wray, Colo.....1909
HESS, ISAAC E., Philo, Ill.....1909
HIGBEE, HARRY G., 13 Austin St., Hyde Park, Mass.....1900
HIGGINS, HENRY CHAS., Uxbridge, Mass.....1912
HILL, JAMES HAYNES, Box 485, New London, Conn.....1897
HILL, Mrs. THOMAS R., 4629 Baltimore Ave., Philadelphia, Pa.....1903
HINCKLEY, GEO. LYMAN, Public Library, Boston, Mass.....1912
HINCKLEY, HENRY H., Melrose Highlands, Mass.....1912
HINE, Prof. JAMES STEWART, Ohio State Univ., Columbus, Ohio....1899
HINE, Mrs. JANE L., Auburn, Ind.....1890
HITCHCOCK, FRANK H., Metropolitan Club, New York City.....1891
HIX, GEORGE E., 630 Columbus Ave., New York City.....1904
HODGE, Prof. CLIFTON FREMONT, State University, Eugene, Oregon..1899
HOLDEN, Mrs. EDWIN B., 323 Riverside Drive, New York City.....1903
HOLDEN, Mrs. EMELINE R., 13 E. 79th St., New York City.....1902
HOLLAND, HAROLD MAY, Galesburg, Ill.....1910
HOLLAND, Dr. WILLIAM J., Carnegie Museum, Pittsburgh, Pa.....1899

HOLLISTER, WARREN D., 620 McPhea Bldg., Denver, Colo.....1901
HOLMAN, RALPH H., 33 Chestnut St., Stoneham, Mass.....1907
HOLT, ERNEST G., Barachias, Ala.....1911
HOLT, Mrs. NANCY W. C., 13 Chauncey St., Cambridge, Mass.....1908
HONYWILL, ALBERT W., Jr., 522 Holmes St., Wilkinsburg, Pa.....1907
HORSFALL, BRUCE, Princeton, N. J.....1905
HOTCHKISS, Miss JULIA R., 502 W. 113 St., New York City.....1912
HOWE, CARLTON D., Morrisville, Vt.....1901
HOWE, REGINALD HEBER, Jr., Thoreau Museum, Concord, Mass....1895
HOWELL, A. BRAZIER, Covina, Cal.....1909
HOWELL, BENJ. F., Jr., R. F. D. 1., Boonton, N. J.....1907
HOWES, PAUL GRISWOLD, Maplewood Biol. Laborat., Stamford, Conn..1913
HOWLAND, R. H., 164 Wildwood Ave., Upper Montclair, N. J.....1912
HOYT, Miss ANNIE S., 160 Lexington Ave., New York City.....1909
HOYT, WILLIAM H., Box 425, Stamford, Conn.....1907
HUBBARD, Dr. LUCIUS L., Houghton, Mich.....1907
HUBBARD, Mrs. SARA A., 177 Woodruff Ave., Brooklyn, N. Y.....1891
HUDSON, Mrs. K. W., 22 Chestnut Hill, Wellesley Hill, Mass.....1911
HULL, EDWIN D., 6024 Ellis Ave., Chicago, Ill.....1913
HUNN, JOHN T. SHARPLESS, 1218 Prospect Ave., Plainfield, N. J.....1895
HUNT, CHRESWELL J., 740 S. Cuyler Ave., Oak Park, Ill.....1902
HUTCHINSON, Dr. W. F., Box 42, Portsmouth, Va.....1910
INGALLS, CHARLES E., East Templeton, Mass.....1885
INGERSOLL, ALBERT M., Box 843, San Diego, Cal.....1885
IRVING, JOHN, Glen Cove, N. Y.....1894
ISHAM, C. B., 27 W. 67 St., New York City.....1891
IVES, H. DAVID, Southampton, N. Y.....1912
JACKSON, HARTLEY H. T., Biological Survey, Washington, D. C.....1910
JACKSON, THOMAS H., 304 N. Franklin St., West Chester, Pa.....1888
JAMES, Mrs. I. M., 105 W. Court St., Doylestown, Pa.....1909
JAMES, NORMAN, Baltimore, Md.....1913
JARVES, Miss FLORA AMY, Box 151, Kingston Hill, R. I.....1913
JENKINS, Miss IDA G., 30 Dearborne St., Roxbury, Mass.....1912
JENKS, CHAS. W., Bedford, Mass.....1912
JENNEY, CHARLES F., 100 Gordon Ave., Hyde Park, Mass.....1905
JENNINGS, RICHARD D., 129 Harrison St., East Orange, N. J.....1913
JENSEN, J. K., Westwood, Mass.....1912
JESSUP, J. M., Smithsonian Institution, Washington, D. C.....1910
JEWEL, LINDSEY L., Rosemont Villa, Saranac Lake, N. Y.....1910
JEWETT, STANLEY G., 582 Bidwell Ave., Portland, Oregon.....1906
JEWETT, McCORMICK, 395 Yale Station, New Haven, Conn.....1909
JOHNS, ERWIN WM., Kingsley, Iowa.....1910
JOHNSON, CHAS. E., 714 16 Ave., S. E., Minneapolis, Minn.....1912
JOHNSON, FRANK EDGAR, 16 Amackassin Terrace, Yonkers, N. Y.....1888
JOHNSON, Mrs. GRACE PETTIS, City Library Asso., Springfield, Mass..1908
JOHNSON, JAMES HOWARD, Bradford, N. H.....1894

JOHNSON, J. M., 77 Herkimer St., Brooklyn, N. Y.....1913
JOHNSON, WALTER ADAMS, 120 W. 32d St., New York City.....1889
JOHNSON, WILLIAM S., Lyons, N. Y.....1893
JONES, F. W., 563 Massachusetts Ave., Boston, Mass.....1912
JONES, Dr. LOMBARD C., Falmouth, Mass.....1912
JORDAN, A. H. B., Lowell, Wash.....1888
JUMP, Mrs. EDWIN R., 350 Waltham St., West Newton, Mass.....1910
JUSTICE, HENRY, Devon, Pa.....1913
KALMBACH, EDWIN R., Biological Survey, Washington, D. C.....1910
KNAPP, Mrs. H. A., 301 Quincy Ave., Scranton, Pa.....1913
KEAYS, JAMES EDWARD, 328 St. George St., London, Ontario.....1899
KEIM, THOMAS DANIEL, Fellowship Farm, Stelton, N. J.....1902
KELLOGG, RALPH T., Silver City, N. M.....1913
KENDALL, H. F., Virginia, Minn.....1911
KENDRICK, WILLIAM F., Denver, Colo.....1912
KENISTON, ALLAN, Box 148, Edgartown, Mass.....1912
KENT, DUANE E., 47 West St., Rutland, Vt.....1913
KENT, EDWIN C., 90 West St., New York City.....1907
KERMODE, FRANCIS, Provincial Museum, Victoria, B. C.....1904
KEYES, Prof. CHAS. R., Mt. Vernon, Ia.....1904
*KIDDER, NATHANIEL T., Milton, Mass.....1906
KIHN, WILFRED L., 755 Eastern Parkway, Brooklyn, N. Y.....1913
KILBURN, FRANK M.. Fort Fairfield, Me.....1911
KILGORE, WILLIAM, Jr., 4304 Colfax Ave., S., Minneapolis, Minn.....1906
KILMAN, A. H., Ridgeway, Ontario.....1909
KING, LE ROY, 20 E. 84th St., New York City.....1901
KIRKHAM, Mrs. JAMES W., 275 Maple St., Springfield, Mass.....1904
*KIRKHAM, STANTON D., 152 Howell St., Canandaigua, N. Y.....1910
KIRKWOOD, FRANK C., Baldwin, Md.....1892
KITTREDGE, JOSEPH, Jr., Priest River, Idaho.....1910
KLOSEMAN, Miss JESSIE E., 4 Spruce St., Dedham, Mass.....1909
KNAEBEL, ERNEST, 3707 Morrison St., Chevy Chase, D. C.....1906
KNAPP, Mrs. HENRY A., 301 Quincy Ave., Scranton, Pa.....1907
KNOLHOFF, FERDINAND WILLIAM, 30 E. 42nd St., New York City....1890
KOHLER, LOUIS SLIDELL, 98 Watsessing Ave., Bloomfield, N. J.....1910
KREMER, ROLAND EDWARD, 1720 Vilas St., Madison, Wis.....1909
KRETZMAN, Prof. P. E., 1230 St. Anthony Ave., St. Paul, Minn.....1913
KUSER, ANTHONY R., Bernardsville, N. J.....1908
KUSER, Mrs. ANTHONY R., Bernardsville, N. J.....1910
KUSER, JOHN DRYDEN, Bernardsville, N. J.....1910
KUTCHIN, Dr. VICTOR, Green Lake, Wis.....1905
LA DOW, STANLEY V., 610 W. 116th St., New York City.....1913
LACEY, HOWARD GEORGE, Kerrville, Texas.....1899
LAMB, CHAS. R., 159 Brattle St., Cambridge, Mass.....1912

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*Life Associate.

LANCASHIRE, Mrs. JAMES HENRY, Manchester, Mass.....1909
LANE, LAWTON W., 121 Franklin St., Lynn, Mass.....1909
LANG, HERBERT, Amer. Mus. Nat. Hist., New York City.....1907
LANTZ, Prof. DAVID ERNEST, Dept. of Agriculture, Washington, D. C..1885
LARRABEE, AUSTIN P., 1540 Vassar Ave., Wichita, Kan.....1902
LATIMER, Miss CAROLINE P., 19 Pierrepont St., Brooklyn, N. Y.....1898
LAURENT, PHILIP, 31 E. Mt. Airy Ave., Mt. Airy, Philadelphia, Pa...1902
LAW, J. EUGENE, Hollywood, Cal.....1907
LAWRENCE, JOHN B., 126 E. 30th St., New York City.....1907
LEE, CHARLOTTE E., 40 E. 31st St., New York City.....1913
LEE, HENRY E., Rapid City, S. D.....1910
LEMAN, J. HOWARD, 48 Beacon St., Boston, Mass.....1912
LEMSEN, NICHOLAS F., 34 Nassau St., New York City.....1912
LENGERKE, JUSTUS VON, 200 5th Ave., New York City.....1907
LEVEY, W. CHARLESWORTH, Alton Bay, N. H.....1908
LEWIS, Dr. FREDERIC T., 76 Oxford St., Cambridge, Mass.....1909
LEWIS, HARRISON F., R. R. 2 Yarmouth, Nova Scotia.....1912
LEWIS, Mrs. HERMAN, 120 Grove St., Haverhill, Mass.....1912
LEWIS, L. ALVA, 608 Panama Bldg., Portland, Ore.....1913
LIGON, Stokley, Pecos, Texas.....1912
LINCOLN, FREDERICK CHARLES, Colorado Museum Natural History, Denver, Colo.....1910
LINGS, GEO. H., 208 Piermont Ave., Nyack, N. Y.....1913
LINSAY, Dr. D. MOORE, 808 Boston Block, Salt Lake City, Utah....1912
LINTON, CLARENCE B., 125 West Ocean Ave., Long Beach, Cal.....1908
LINZEE, JOHN W., 96 Charles St., Boston, Mass.....1912
LITTLE, LUTHER 2d, 1625 W. Adam St., Los Angeles, Cal. 1913
LONGSTREET, RUBERT J., Stetson University, DeLand, Fla.....1913
LORD, Rev. WILLIAM R., Dover, Mass.....1901
LORING, J. ALDEN, Owego, N. Y.....1889
LORING, MARION B., 914 High St., Dedham, Mass.....1913
LOW, ETHELBERT T., 30 Broad St., New York City.....1907
LUCE, Mrs. FRANCES P., 140 Washington St., Boston, Mass.....1912
LUM, EDWARD H., Chatham, N. J.....1904
LUND, Dr. F. B., 527 Beacon St., Boston, Mass.....1913
LUTHER, CLARENCE H., 8 McIlroy Bldg., Fayetteville, Ark.....1910
MACDOUGALL, GEORGE R., 112 Wall St., New York City.....1890
MACKIE, Dr. WM. C., 54 Coolidge St., Brookline, Mass.....1908
MACLAY, MARK W., Jr., 830 Park Ave., New York City.....1905
MADDOCK, Miss EMELINE, The Drexel, Philadelphia, Pa 1897
MADISON, HAROLD L., Park Museum, Providence. R. I.....1912
MAHER, J. E., Windsor Locks, Conn.....1902
MAITLAND, ROBERT L., 141 Broadway, New York City.....1889
MANN, ELIAS P., Williamstown, Mass.....1912
MAPLES, JAMES C., Port Chester, N. Y.....1913
MARBLE, RICHARD M., 7 Keiffer St., Brookline, Mass.....1907

MARCH, Prof. JOHN LEWIS, Union College, Schenectady, N. Y.....1903
MARRS, Mrs. KINGSMILL, 9 Commonwealth Ave., Boston, Mass.....1903
MARSHALL, ELLA, M. O., New Salem, Mass.....1912
MARTIN, Miss MARIA ROSS, Box 365, New Brunswick, N. J.....1902
MARX, EDWARD J. F., 8 Chestnut Terrace, Easton, Pa.....1907
MASON, VINTON W., 12 Davenport St., Cambridge, Mass.....1913
MATTERN, EDWIN S., 1042 Walnut St., Allentown, Pa.....1912
MATTERN, WALTER, 1042 Walnut St., Allentown, Pa.....1912
MAY, Miss ADELINA, 226 Ocean St., Lynn, Mass.....1912
MAYNARD, C. J., 447 Crafts St., West Newton, Mass.....1912
McCLINTOCK, NORMAN, 504 Amberson Ave., Pittsburgh, Pa.....1900
McCONNELL, HARRY B., Cadiz, O.....1904
McCOOK, PHILIP JAMES, 15 William St., New York City.....1895
McHATTON, Dr. HENRY, 335 Golley St., Macon, Ga.....1898
McILHENNY, EDWARD AVERY, Avery Island, La.....1894
McINTIRE, Mrs. HERBERT BRUCE, 4 Garden St., Cambridge, Mass...1908
McINTYRE, Mrs. J. W., 151 Franklin St., Newton, Mass.....1913
McLAIN, ROBERT BAIRD, Market and 12th Sts., Wheeling, W. Va....1893
McLEAN, Hon. GEO. P., Lunsbury, Conn.....1913
McMAHON, WALT F., 21 Maywood St., Roxbury, Mass.....1913
McMILLAN, Mrs. GILBERT, Gorham, N. H.....1902
MEAD, Mrs. E. M., 301 W. 91 St., New York City.....1904
MEANS, CHAS. J., 29 Marlborough St., Boston, Mass.....1912
MELLUS, J. T., 36 Cottage St., Wellesley, Mass.....1912
MENGEL, G. HENRY, 739 Madison Ave., Reading, Pa.....1913
MERRIAM, CHARLES, Weston, Mass.....1908
MERRIAM, HENRY F., 30 Clinton Ave., Maplewood, N. J.....1905
MERRILL, ALBERT R., Hamilton, Mass.....1912
MERRILL, D. E., State College, New Mexico.....1913
MERRILL, HARRY, Bangor, Maine.....1883
MERSHON, W. B., Saginaw, Mich.....1905
MESSENGER, G. H., Linden, Iowa.....1911
METCALF, ROBT. W., 160 High St., Springfield, Mass.....1912
METCALF, WILLARD L., 16 Gramercy Park, New York City.....1908
METCALF, Z. P., A & M. College, West Raleigh, N. C.....1913
MEYER, Lieut. G. RALPH, Ft. McKinley, Portland Harbor, Me.....1913
MEYER, Miss HELOISE, Lenox, Mass.....1913
MILLER, CHAS. W., Jaffna College, Vaddukoddai Station, Jaffna, Ceylon.....1909
MILLER, LEO, Amer. Museum Nat. Hist., New York City.....1912
MILLS, HARRY C., Box 218, Unionville, Conn.....1897
MILLS, Dr. HERBERT R., Tampa, Fla.....1911
MILLS, Prof. WILLIAM C., Ohio State Univ., Columbus, O.....1900
MINER, LEO D., 1836 Vernon St., N. W. Washington, D. C.....1913
MISCHKE, GEO. M., 1122 49th St., Brooklyn, N. Y.....1913
MITCHELL, CATHERINE ADAMS, Riverside, Ill.....1911

MITCHELL, H. H., 2337 Smith St., Regina, Sask., Canada.....1913
MITCHELL, Dr. WALTON I., 603 Beacon Bldg., Wichita, Kan.....1893
MOIR, ALEX. L., 77 Hampshire St., Lowell, Mass.....1912
MOODY, Miss JULIA, Summit Rd., Wellesley, Mass.....1913
MOORE, CHAS. S., San Diego, Cal.....1913
MOORE, HENRY D., Haddonfield, N. J.....1911
MOORE, Miss ELIZ. PUTNAM, 221 Worcester St., New Haven, Conn...1905
MOORE, ROBERT THOMAS, 46 Mansion Ave., Haddonfield, N. J.....1898
MOORE, WILLIAM G., 257 W. Main St., Haddonfield, N. J.....1910
MORCOM, G. FREAN, 734 Belden Ave., Chicago, Ill.....1886
MORE, R. L., Vernon, Texas.....1911
MORGAN, ALBERT, Box 1323, Hartford, Conn.....1903
MORGAN, ALBERT S., Winfield, W. Va.....1913
MORLEY, G. GRISWOLD, 2325 13th St., Boulder, Colo.....1911
MORRIS, SIDNEY V., Bristol, Pa.....1911
MORSE, ELIZA A., 21 Elm St., Worcester, Mass.....1913
MORSE, HARRY GILMAN, Huron, Ohio.....1912
MOSHER, FRANKLIN H., 17 Highland Ave., Melrose, Mass.....1905
MUNRO, J. A., Okanagan Landing, British Columbia, Canada.....1913
MURPHEY, Dr. EUGENE E., 444 Tellfair St., Augusta, Ga.....1903
MURPHY, ROBERT C., Museum, Brooklyn Inst., Eastern Parkway, Brooklyn, N. Y.....1905
MUSGRAVE, JOHN K., 3516 Shady Ave., Allegheny, Pa.....1909
MUSSELMAN, THOMAS EDGAR, Gem City Business College, Quincy, Ill.1910
MYERS, Mrs. HARRIET W., 311 Ave. 66, Los Angeles, Cal.....1906
MYERS, Miss LUCY F., Brookside, Poughkeepsie, N. Y.....1898
NASH, HERMAN W., Box 264, Pueblo, Colo.....1892
NELSON, JAMES ALLEN, Somerset, Bethesda, Md.....1898
NEWELL, Mrs. H. S., 2431 E. 5th St., Duluth, Minn.....1912
NEWHALL, DANIEL S., Strafford, Pa.....1908
NEWMAN, Rev. STEPHEN M., Howard University, Washington, D. C...1898
NICHOLS, JOHN M., 46 Spruce St., Portland, Me.....1890
NICHOLS, JOHN TREADWELL, Am. Mus. Nat. Hist., New York City..1901
NICHOLSON, DONALD J., West Church St., Orlando, Fla.....1912
NIMS, Mrs. LUCIUS, 5 Union St., Greenfield, Mass.....1913
NOBLE, G. KINGSLEY, 13 Howland St., Cambridge, Mass.....1913
NOLTE, Rev. FELIX, St. Benedict's College, Atchison, Kan.....1903
NORRIS, J. PARKER, Jr., 2122 Pine St., Philadelphia, Pa.....1904
NORRIS, ROY C., 725 N. 10th St., Richmond, Ind.....1904
NOVY, FRANK ORIEL, 721 Forest Ave., Ann Arbor, Mich.....1909
NOWELL, JOHN ROWLAND, Box 979, Schenectady, N. Y.....1897
OGDEN, Dr. HENRY VINING, 141 Wisconsin St., Milwaukee, Wis.....1897
OHL, H. C., 1457 Jay St., Fresno, Cal.....1913
OLDYS, HENRY, Silver Springs, Md.....1896
*OLIVER, Dr. HENRY KEMBLE, 2 Newbury St., Boston, Mass.....1900

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* Life Associate.

ORDWAY, ELIZABETH I., 20 Myrtle St., Winchester, Mass.....1913
OSBORN, ARTHUR A., 58 Washington St., Peabody, Mass.....1912
OSBURN, PINGREE S., 189 E. Colorado St., Pasadena, Cal.....1910
OVERTON, Dr. FRANK, Patchogue, N. Y.....1909
*OWEN, Miss JULIETTE AMELIA, 306 N. 9th St., St. Joseph, Mo.....1897
PAINE, AUGUSTUS G., Jr., 18 West 49th St., New York City.....1886
PALADIN, ARTHUR, N. Y. State Museum, Albany, N. Y.....1911
PALMER, S. C., Swarthmore College, Swarthmore, Pa.....1912
PARKER, Mrs. BENJAMIN W., 4 Hopestill St., Dorchester Centre, Mass.1909
PARKER, Hon. HERBERT, South Lancaster, Mass.....1904
PARSONS, JOHN E., 130 E. 36th St., New York City.....1912
PARSONS, R. L., 158 Raymond Ave., South Orange, N. J.....1911
PARSONS, WILLIAM, Box 422, Manila, P. I.....1909
PAUL, LUCIUS H., 202 Edinburgh St., Rochester, N. Y.....1908
PEABODY, Rev. P. B., Blue Rapids, Kan.....1903
PEAVEY, ROBERT W., 791 Coney Island Ave., Brooklyn, N. Y.....1903
PECK, MORTON E., 292 N. Summer St., Salem, Ore.....1909
PENARD, THOS. E., 16 Norfolk Rd., Arlington, Mass.....1912
PENFIELD, Miss ANNIE S., 155 Charles St., Boston, Mass.....1912
PENNINGTON, FRED ALBERT, 5529 Kenwood Ave., Chicago, Ill.....1910
PEPPER, Dr. WM., 1811 Spruce St., Philadelphia, Pa.....1911
PERKINS, Dr. GEO. H., Burlington, Vt.....1912
PERRY, Dr. HENRY JOSEPH, 636 Beacon St., Boston, Mass.....1909
PETERS, ALBERT S., Lake Wilson, Minn.....1908
PETERS, JAMES LEE, Harvard, Mass.....1904
PHELPS, FRANK M., 212 E. 4th St., Elyria, Ohio.....1912
PHELPS, Mrs. J. W., Box 36, Northfield, Mass.....1899
PHILHOWER, CHAS. A., Chatham, N. J.....1913
PHILIPP, PHILIP B., 220 Broadway, New York City.....1907
PHILLIPS, ALEXANDER H., 54 Hodge Road, Princeton, N. J.....1891
PHILLIPS, CHAS. LINCOLN, 4 West Weir St., Taunton, Mass.....1912
PILSBURY, FRANK O., Box 592, Walpole, Mass.....1909
PINCHOT, GIFFORD, 1617 Rhode Island Ave., Washington, D. C.....1910
PITCAIRN, WILLIAM G., 3330 Perrysville Ave., Allegheny, Pa.....1906
PLATT, Mrs. DAN F., "Ambercroft," Englewood, N. J.....1913
POE, Miss MARGARETTA, 1222 N. Charles St., Baltimore, Md.....1899
POMEROY, HARRY KIRKLAND, Box 575, Kalamazoo, Mich.....1894
POND, Miss ELLEN J., 160 Lexington, Ave., New York City.....1909
POOLE, ALFRED D., 401 W. 7th St., Wilmington, Del.....1901
POPE, ALEXANDER, 1013 Beacon St., Brookline, Mass.....1908
POPE, E. F., Colmesneil, Texas.....1913
PORTER, Rev. E. C., 51 Fowler St., Boston, Mass.....1912
PORTER, LOUIS H., Stamford, Conn.....1893
POST, WM. S., 347 5th Ave, New York City.....1911

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*Life Associate.

POTTER, JULIAN K., Camden, N. J.....1912
PRAEGER, WILLIAM E., 421 Douglas Ave., Kalamazoo, Mich.....1892
PRICE, JOHN HENRY, Crown W Ranch, Knowlton, Mont.....1906
PRICE, LIGON, R. F. D. 1, Box 44, Dunmon, W. Va.....1913
PRIMM, ROY LEE, 113 W. Dayton St., Madison, Wis.....1912
PROCTOR, Mrs. HENRY H., 282 Commonwealth Ave., Boston, Mass...1912
PROCTOR, THOS. E., Topsfield, Mass.....1912
PURDY, JAMES B., R. F. D. 4, Plymouth, Mich.....1893
PUTNAM, Prof. F. W., Cambridge, Mass.....1912
RAMSDEN, CHAS. G., Box 146, Guantanamo, Cuba.....1912
RATHBORNE, R. C., 18 Congress St., Newark, N. J.....1911
RAWSON, CHAS. T., Oxford, Mass.....1912
RAWSON, CALVIN LUTHER, R. F. D. 2, Putnam, Conn.....1885
RAYMOND, Mrs. C. E., 21 3d St., Hinesdale, Ill.....1910
REA, PAUL M., Charleston Museum, Charleston, S. C.....1912
REAGH, Dr. ARTHUR LINCOLN, 39 Maple St., West Roxbury, Mass...1896
RECTOR, WILSON BLAINE, Belington, W. Va.....1913
REDFIELD, Miss ELISA WHITNEY, 29 Everett St., Cambridge, Mass..1897
REECHER, SAMUEL E., Chester, Ill.....1912
REED, HUGH DANIEL, 108 Brandon Place, Ithaca, N. Y.....1900
REHN, JAMES A. G., 6033 B Catherine St., Philadelphia, Pa.....1901
RENSHAW, MARY H., Box 1640, New Orleans, La.....1913
REYNOLDS, THEO. E. W., R. F. D. 2, Kent, Wash.....1912
RHOADS, CHARLES J., care of Girard Trust Co., Philadelphia, Pa.....1895
RICE, JAMES HENRY, Jr., Summerville, S. C.....1910
RICE, WARD J., Roachdale, Ind.....1913
RICHARDS, Miss HARRIET E., 36 Longwood Ave., Brookline, Mass...1900
RICHARDSON, WYMAN, 224 Beacon St., Boston, Mass.....1912
RIDEOUT, A. LILLIAN, 15 Farragut Rd., Swampscott, Mass.....1912
RIDGWAY, JOHN L., Chevy Chase, Md.....1890
RICKETSON, WALTON, 10 Anthony St., New Bedford, Mass.....1913
RIKER, CLARENCE B., 43 Scotland Rd., South Orange, N. J.....1885
RING, CLARK L., Saginaw, Mich.....1912
RIPLEY, CHAS., 173 Harvard St., Dorchester, Mass.....1912
RIPLEY, Mrs. J. W., 67 Greenleaf St., Malden, Mass.....1912
ROBBINS, Miss ALMEDA B., Y. M. Library Association, Ware, Mass..1910
ROBERTS, JAMES O., 821 Genesee St., Utica, N. Y.....1912
ROBERTS, JOHN T., JR., 350 Main St., Buffalo, N. Y.....1906
ROBERTS, WILLIAM ELY, 5501 Spruce St., Philadelphia, Pa.....1902
ROBERTSON, HOWARD, 157 S. Wilton Drive, Los Angeles, Cal.....1911
ROBINSON, ANTHONY W., 409 Chestnut St., Philadelphia, Pa.....1903
ROCKWOOD, Mrs. GEO. I., 340 May St., Worcester, Mass.....1912
*ROGERS, CHARLES H., Amer. Mus. Nat. Hist., New York City.....1904
ROLFE, ALFRED G., High School, Pottstown, Pa.....1909

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* Life Associate.

ROOSEVELT, FRANKLIN DELANO, Hyde Park, N. Y.....1896
ROPER, KENYON, 509 N. 4th St., Steubenville, Ohio.....1911
ROSS, GEORGE H., 23 West St., Rutland, Vt.....1904
ROSS, Dr. LUCRETIUS, 507 Main St., Bennington, Vt.....1912
ROSSIGNOL, GILBERT R., Jr., 2116 Bull St., Savannah, Ga.....1909
ROWLEY, JOHN, 42 Plaza Drive, Berkeley, Cal.....1889
SACKETT, CLARENCE, Rye, N. Y.....1910
SAGE, HENRY M., Menands Road, Albany, N. Y.....1885
SANBORN, COLIN C., 709 E. Lincoln Ave., Highland Park, Ill.....1911
SANFORD, HARRISON, Litchfield, Conn.....1905
SAUNDERS, ARETAS A., West Haven, Conn.....1907
SAVAGE, JAMES, 1097 Ellicott Sq., Buffalo, N. Y.....1895
SAVAGE, WALTER GILES, Delight, Ark.....1898
SCHANTZ, ORPHEUS M., 5215 W. 24th St., Cicero, Ill.....1907
SCHENCK, FREDRIC, 52 Brattle St., Cambridge, Mass.....1912
SCHMIDT, WALDO, U. S. S. S. "Albatross," Sausalito, Cal.....1910
SCHORGER, A. W., Forest Products Laboratory, Madison, Wis.....1913
SCHWEDER, ARTHUR, 184 Upper Mountain Ave., Montclair, N. J....1911
SCOTT, WILLIAM G., Box 1954, Winnipeg, Man., Canada.....1913
SEWALL, JOTHAM B., 1501 Beacon St., Brookline, Mass.....1912
SHANNON, WM. PURDY, 1170 Broadway, New York City.....1908
SHARPLES, ROBERT P., West Chester, Pa.....1907
SHAW, CHAS. F., 676 Bedford St., North Abington, Mass.....1912
SHAW, Dr. J. HOLBROOK, 43 Court St., Plymouth, Mass.....1912
SHAW, WILLIAM T., 600 Linden Ave., Pullman, Wash.....1908
SHEARER, AMON R., Mont Belvieu, Tex.....1905
SHELDON, CHARLES, 8 W. 9th St., New York City.....1911
SHELTON, ALFRED, 2312 Gough St., San Francisco, Cal.....1911
SHIRAS, GEORGE, 3d, Stoneleigh Court, Washington, D. C.....1907
SHOEMAKER, CLARENCE R., 3116 P St., Washington, D. C.....1910
SHOEMAKER, FRANK H., 206 Nebraska Hall, Station A, Lincoln, Neb..1895
SHOEMAKER, HENRY W., 26 W. 53d St., New York City.....1912
SHROSBREE, GEORGE, Public Museum, Milwaukee, Wis.....1899
SILLIMAN, HARPER, 4 Gramercy Park, New York City.....1902
SIMMONS, GEO. F., 622 First National Bank, Houston, Texas.....1910
SLADE, Mrs. DANIEL D., Chestnut Hill, Mass.....1912
SMITH, AUSTIN PAUL, Box 63, Winslow, Ark.....1911
SMITH, BYRON L., 2140 Prairie Ave., Chicago, Ill.....1906
SMITH, Miss ETHEL M., Rome, Ohio.....1910
SMITH, Rev. FRANCIS CURTIS, Boonville, N. Y.....1903
SMITH, Prof. FRANK, Univ. of Ill., Urbana, Ill.....1909
SMITH, HORACE G., State Capitol, Denver, Colo.....1888
SMITH, Dr. HUGH M., 1209 M St. N. W., Washington, D. C.....1886
SMITH, JESSE L., 141 South 2nd St., Highland Park, Ill.....1907
SMITH, LOUIS IRVIN, Jr., 3908 Chestnut St., Philadelphia, Pa.....1901
SMITH, MYRTON T., 308 Pearl St., Hartford, Conn.....1909

SMITH, WILBUR F., South Norwalk, Conn.....1909
SMYTH, Prof. ELLISON A., Jr., Polytechnic Inst., Blacksburg, Va....1892
SNYDER, WILL EDWIN, R. F. D. 6, Beaver Dam, Wis.....1895
SOUTHER, ARTHUR L., 38 Pleasant St., Stoneham, Mass.....1913
SPEARS, Miss ETHEL D., 115 East 69th St., New York City.....1913
SPEENBURGH, D. C., 200 W. 95th St., New York City.....1913
SPELMAN, HENRY M., 48 Brewster St., Cambridge, Mass.....1911
SPOONER, Miss M. T., 381 Commonwealth Ave., Boston, Mass.....1913
STANSELL, S. S., Manly, Alberta, Canada.....1913
STANTON, Prof. J. Y., 410 Main St., Lewiston, Me.....1883
STANWOOD, Miss CORDELIA JOHNSON, Ellsworth, Me.....1909
STEARNS, GEO. CUSHMAN, 494 Washington St., Dedham, Mass.....1913
STEELE, JOHN H., Flemington, N. J.....1906
STEPHENS, T. C., Morningside College, Sioux City, Iowa.....1909
STEVENS, FRANK E., 25 Hudson St., Somerville, Mass.....1912
STEVENS, Dr. J. F., Box 546, Lincoln, Neb.....1908
STILES, EDGAR C., 345 Main St., West Haven, Conn.....1907
ST. JOHN, EDWARD PORTER, 75 Farmington Ave., Hartford, Conn...1911
STOCKBRIDGE, CHAS. A., Fort Wayne, Ind.....1911
STODDARD, HERBERT LEE, Field Museum Nat. Hist., Chicago, Ill.....1912
STONE, CLARENCE F., Branchport, N. Y.....1903
STONE, H. F., Lawrence, N. Y.....1913
STONE, WM. D, Fayetteville, Ark.....1911
STOVER, ALLAN J., Kings Rd., R. F. D. 3, Corvallis, Ore.....1912
STRATER, FRANCIS A., 50 Sumner Rd., Brookline, Mass.....1912
STRATTON-PORTER, Mrs. GENE, Box 855, Rome City, Ind.....1906
STREET, J. FLETCHER, Beverly, N. J.....1908
STRODE, W. S., LEWISTON, Ill.....1911
STUART, GEO. H., 3rd, care of Girard Trust Co., Philadelphia, Pa.....1913
STURGIS, S. WARREN, Groton, Mass.....1910
STURTEVANT, EDWARD, St. George's School, Newport, R. I.....1896
STYER, Mrs. KATHARINE R., Concordville, Pa.....1903
SUGDEN, ARTHUR W., 52 Highland St., Hartford, Conn.....1913
SUMMERS, JOHN N., 17 E. Highland Ave., Melrose Highlands, Mass...1912
SUMNER, Mrs. GRAHAM, Englewood, N. J.....1910
SURFACE, Prof. HARVEY ADAM, State Zoölogist, Harrisburg, Pa.....1897
SWAIN, JOHN MERTON, Box 633, Farmington, Me.....1899
SWENK, MYRON H., 3028 Starr Street, Lincoln, Neb.....1904
SWEZEY, GEORGE, 855 S. 15th St., Newark, N. J.....1901
TAYLOR, ALEXANDER R., 1633 Main St., Columbia, S. C.....1907
TAYLOR, B. F., 1619 Green St., Columbia, S. C.....1911
TAYLOR, LIONEL E., Kelouna, British Columbia.....1913
TERRILL, LEWIS McI., Stanley Ave., St. Lambert, Quebec.....1907
TEST, CHARLES DARWIN, Golden, Col.....1906
TEST, Dr. FREDERICK CLEVELAND, 4620 Greenwood Ave., Chicago, Ill.....1892

Test, Louis Agassiz, Rolla, Mo.....1908
Thomas, Miss Emily Hinds, 2000 Spruce St., Philadelphia, Pa.....1901
Thompson, Chas. S., 1721 Mission St., South Pasadena, Cal.....1909
Thorne, Samuel, 19 Cedar St., New York City.....1908
Thurston, Henry, Box 181, Floral Park, N. Y.....1912
Tilley, Geo. D., Darien, Conn.....1910
Tinker, Almerin D., 631 S. 12th St., Ann Arbor, Mich.....1907
Tomlinson, Franklin L., Box 572, Shelton, Conn.....1912
Toppan, George L., care of Col. C. Pfaff, Framingham, Mass.....1886
Tourtellotte, A. J., 114 East Main St., Westboro, Mass.....1913
Tower, Mrs. Kate Denig, 9 Newbury St., Boston, Mass.....1908
Townsend, Wilmot, 334 80th St., Brooklyn, N. Y.....1894
Treganza, A. O., 610 Utah Savings & Trust Bldg., Salt Lake City, Utah.....1906
Trippe, Thomas M., Howardsville, Colo.....1909
Trotter, William Henry, 36 N. Front St., Philadelphia, Pa.....1899
Trumbull, J. H., Plainville, Conn.....1907
Tudbury, Warren C., 600 Security Bldg., Los Angeles, Cal.....1903
Tufts, Le Roy Melville, Thrushwood, Farmington, Me.....1903
Tufts, Miss Mary I., 1 Atlantic St., Lynn, Mass.....1910
Tuttle, Dr. Albert H., 1069 Boylston St., Boston, Mass.....1908
Tuttle, Henry Emerson, 253 Yale Station, New Haven, Conn.....1909
Tweedy, Edgar, 37 Fairview Ave., Danbury, Conn.....1902
Tyler, John G., 1114 Belmont Ave., Fresno, Cal.....1912
Tyler, Dr. Winsor M., 522 Mass. Ave., Lexington, Mass.....1912
Ulrich, Albert George, 3307 Washington Ave., St. Louis, Mo.....1909
Underwood, William Lyman, Mass. Inst. Technology, Boston, Mass.....1900
Valentine, Miss Anna J., Bellefonte, Pa.....1905
Van Beuren, Miss Louise, 21 W. 14th St., New York City.....1909
Van Cortlandt, Miss Anne S., Croton-on-Hudson, N. Y.....1885
Van Name, Willard Gibbs, N. Y. State Museum, Albany, N. Y....1900
Van Sant, Miss Elizabeth, 2960 Dewey Ave., Omaha, Neb.....1896
Vantassell, F. L., 116 High St., Passaic, N. J.....1907
Vetter, Dr. Charles, 2 West 88th St., New York City.....1898
Vietor, Dr. Edward W., 166 St. James Place, Brooklyn, N. Y.....1911
Visher, Stephen S., Vermilion, S. D.....1904
Votey, Prof. J. Wm., 489 Main St., Burlington, Vt.....1912
Vrooman, Isaac H., Jr., 282 Hamilton St., Albany, N. Y.....1908
Wadleigh, Wm. G., 219 State St., Boston, Mass.....1913
Wadsworth, Clarence S., 37 Washington St., Middletown, Conn...1906
Walcott, Frederic Collins, 14 Wall St., New York City.....1913
Waite, Miss Elizabeth W., 29 Shepard St., Cambridge, Mass.....1912
Waite, Mrs. J. Gilman, 19 Pearl St., Medford, Mass.....1912
Wales, Edward H., Hyde Park, N. Y.....1896
Walker, Alexander, Mulino, Oreg.....1913

WALKER, CURTIS H., University of Chicago, Chicago, Ill.....1910
WALKER, ERNEST P., Fisheries Service, Wrangell, Alaska.....1911
WALKER, GEO. R., R. F. D. 3, Murray, Utah.....1909
WALKER, Dr. R. L., 355 Main Ave., Carnegie, Pa.....1888
WALLACE, CHAS. R., 27 Park Ave., Delaware, Ohio.....1913
WALLACE, JAMES S., 533 Front St., E., Toronto, Ontario.....1907
WALTER, Dr. HERBERT E., 53 Arlington Ave., Providence, R. I.....1901
WALTERS, FRANK, South Sandisfield, Mass.....1902
WARD, FRANK HAWLEY, 18 Grove Place, Rochester, N. Y.....1908
WARD, HENRY L., 882 Hackett Ave., Milwaukee, Wis.....1906
WARD, Mrs. MARTHA E., 25 Arlington St., Lynn, Mass.....1909
WARNER, EDWARD P., Concord, Mass.....1910
WARNER, GOODWIN, Concord Junction, Mass.....1908
WARNER, WILLIS H., R. F. D. 2, Canfield, Ohio.....1913
WATSON, Mrs. ALEX M., 2818 Winslow St., Walnut Hills, Cincinnati, Ohio.....1910
WEBER, J. A., Palisades Park, N. J.....1907
WEIR, J. ALDEN, 471 Park Ave., New York City.....1899
WELLMAN, GORDON B., 54 Beltran St., Malden, Mass.....1908
WENTWORTH, IRVING H., 245 Belden Ave., San Antonio, Texas.....1900
WESTON, FRANCIS M., Jr., 149 Queen St., Charleston, S. C.....1913
WETMORE, Mrs. EDMUND, 125 E. 57th St., New York City.....1902
WEYGANDT, CORNELIUS, Wissahickon Ave., Mt. Airy, Philadelphia, Pa.1907
WHARTON, WILLIAM P., Groton, Mass.....1907
WHEELER, EDMUND JACOB, 177 Pequot Ave., New London, Conn....1898
WHEELER, HARVEY, Elm St., Concord, Mass.....1912
WHEELOCK, Mrs. IRENE G., 1040 Hinman Ave., Evanston, Ill.....1902
WHITCOMB, MYRON L., 40 Westland Terrace, Haverhill, Mass.....1912
WHITE, FRANCIS BEACH, St. Paul's School, Concord, N. H.....1891
WHITE, GEORGE R., Dead Letter Office, Ottawa, Ontario.....1903
WHITE, Dr. JAMES C., 259 Marlborough St., Boston, Mass.....1913
WHITE, W. A., 158 Columbia Heights, Brooklyn, N. Y.....1902
WHITE, W. C., CHESTER, S. C.....1911
WHITNEY, Prof. DAVID D., Wesleyan Univ., Middletown, Conn.....1912
WICKERSHAM, CORNELIUS W., Cedarhurst, N. Y.....1902
WILBUR, ADDISON P., 60 Gibson St., Canandaigua, N. Y.....1895
WILCOX, T. FERDINAND, 162 W. 54th St., New York City.....1895
WILDE, MARK L. C., 311 N. 5th St., Camden, N. J.....1893
WILLARD, BERTEL G., 30 Huntington Ave., Boston, Mass.....1906
WILLARD, FRANK C., Tombstone, Arizona.....1909
WILLARD, Miss HELEN, 25 Regent Circle, Brookline, Mass.....1913
WILLCOX, Prof. M. A., 80 Mountain Ave., Malden, Mass.....1913
WILLET, GEORGE, 2123 Court St., Los Angeles, Cal.....1912
WILLIAMS, HARRY C., 1281 Goodfellow Ave., St. Louis, Mo.....1908
WILLIAMS, ROBERT S., New York Botanical Gardens, Bronx Park, New York City.....1888

WILLIAMS, ROBERT W., Jr., Tallahassee, Fla.....1900
WILLIAMSON, E. B., Bluffton, Ind.....1900
WILLISTON, Mrs. SAMUEL, 577 Belmont St., Belmont, Mass.....1911
WINDLE, FRANCIS, 253 Dean St., West Chester, Pa.....1909
WING, DEWITT C., 5401 Madison Ave., Chicago, Ill.....1913
WINSLOW, ARTHUR M., 3 Lyford St., Worcester, Mass.....1912
WITHERBEE, Mrs. F. B., 106 Berkeley St., West Newton, Mass.....1906
WOOD, Mrs. GEO., 1313 Spruce St., Philadelphia, Pa.....1910
WOOD, J. CLAIRE, 179 17th St., Detroit, Mich.....1902
WOOD, NELSON R., Smithsonian Institution, Washington, D. C.....1895
WOODRUFF, FRANK M., 225 Wisconsin St., Chicago, Ill.....1904
WOODRUFF, LEWIS B., 24 Broad St., New York City.....1886
WORCESTER, Mrs. ALFRED, Bacon St., Waltham, Mass.....1908
WRIGHT, ALBERT H., 707 E. State St., Ithaca, N. Y.....1906
WRIGHT, Miss HARRIET H., 1637 Gratiot Ave., Saginaw, W. S., Mich.1907
WRIGHT, HORACE WINSLOW, 107 Pinckney St., Boston, Mass.....1902
WRIGHT, SAMUEL, Conshohocken, Pa.....1895
WYMAN, LUTHER E., 1333 Burlington Ave., Los Angeles, Cal.....1907
YOUNG, Miss HARRIET FIBLE, Maple & Monroe Sts., Hinsdale, Ill....1911
YOUNG, JOHN A., 371 Dundas St., London, Ontario.....1907
YOUNG, JOHN P., 1510 5th Ave., Youngstown, Ohio.....1911
YOUNG, WALLACE PARK, 73 Soramen Ave., Toronto, Canada.....1913
ZAPPEY, WALTER R., 137 Westminster Ave., Arlington Heights, Mass..1905
ZIMMER, J. T., 421 Holdridge St., Lincoln, Neb.....1908

DECEASED MEMBERS.

Fellows.

	Date of Death
Aldrich, Charles	March 8, 1908
Baird, Spencer Fullerton	Aug. 19, 1887
Bendire Charles Emil	Feb. 4, 1897
Coues, Elliott	Dec. 25, 1899
Goss, Nathaniel Stickney	March 10, 1891
Holder, Joseph Bassett	Feb. 28, 1888
Jeffries, John Amory	March 26, 1892
McIlwraith, Thomas	Jan. 31, 1903
Merrill, James Cushing	Oct. 27, 1902
Purdie, Henry Augustus	March 29, 1911
Sennett, George Burritt	March 18, 1900
Trumbull, Gurdon	Dec. 28, 1903
Wheaton, John Maynard	Jan. 28, 1887

Honorary Fellows.

Blanford, William Thomas	June 23, 1905
Bocage, J. V. Barboza du	July —, 1908
Burmeister, Hermann	May 1, 1892
Cabanis, Jean	Feb. 20, 1906
Gätke, Heinrich	Jan. 1, 1897
Giglioli, Henry Hillyer	Dec. 14, 1909
Gundlach, Juan	March 14, 1896
Gurney, John Henry	April 20, 1890
Hartlaub, Gustav	Nov. 20, 1900
Huxley, Thomas Henry	June 29, 1890
Kraus, Ferdinand	Sept. 15, 1895
Lawrence, George Newbold	Jan. 17, 1895
Meyer, Adolf Bernard	Feb. 5, 1911
Milne-Edwards, Alphonse	April 21, 1900
Newton, Alfred	June 7, 1907
Parker, William Kitchen	July 3, 1890
Pelzeln, August von	Sept. 2, 1891
Salvin, Osbert	June 1, 1898
Saunders, Howard	Oct. 20, 1907
Sclater, Philip Lutley	June 27, 1913
Schlegel, Hermann	Jan. 17, 1884
Seebohm, Henry	Nov. 26, 1895
Sharpe, Richard Bowdler	Dec. 25, 1909
Taczanowski, Ladislas	Jan. 17, 1890
Wallace, Alfred Russel	Nov. 7, 1913

Corresponding Fellows.

Altum, C. A. ..... Jan. 1, 1900
Anderson, John ..... Aug. 16, 1900
Baldamus, Eduard ..... Oct. 30, 1893
Blakiston, Thomas Wright ..... Oct. 15, 1891
Blasius, Rudolph ..... Sept. 21, 1907
Blasius, Wilhelm ..... May 31, 1912
Bogdanow, Modest Nikolaevich ..... March 4, 1888
Bryant, Walter E. ..... May 21, 1905
Buller, Walter Lawry ..... July 19, 1906
Collett, Robert ..... Jan. 27, 1913
Cooper, James Graham ..... July 19, 1902
Cordeaux, John ..... Aug. 1, 1899
David, Armand ..... Nov. 10, 1900
Dugès, Alfred ..... Jan. 7, 1910
Fatio, Victor ..... March 19, 1906
Haast, Julius von ..... Aug. 15, 1887
Hargitt, Edward ..... March 19, 1895
Hayek, Gustav Edler von ..... Jan. 9, 1911
Holub, Emil ..... Feb. 21, 1902
Homeyer, Eugen Ferdinand von ..... May 31, 1889
Knudson, Valdemar ..... Jan. 8, 1898
Layard, Edgar Leopold ..... Jan. 1, 1900
Leverkühn, Paul ..... Dec. 5, 1905
Lyttleton, Thomas Lord Lilford ..... June 17, 1896
Marschall, August Friedrich ..... Oct. 11, 1887
Malmgren, Anders Johan ..... April 12, 1897
Middendorff, Alexander Theodore von ..... Jan. 28, 1894
Mosjisovics, Felix G. Hermann August ..... Aug. 27, 1897
Oates, Eugene William ..... Nov. 16, 1911
Oustalet, Emile ..... Oct. 23, 1905
Philippi, Rudolph Amandus ..... Aug. —, 1904
Prejevalski, Nicolas Michaelovich ..... Oct. 20, 1887
Prentiss, Daniel Webster ..... Nov. 19, 1899
Pryer, Harry James Stovin ..... Feb. 17, 1888
Radde, Gustav Ferdinand ..... —— 1903
Schrenck, Leopold von ..... Jan. 20, 1894
Séleys-Longschamps, Edmond de ..... Dec. 11, 1900
Severtzow, Nicolai Aleksyewvich ..... Feb. 8, 1885
Shelley, George Ernest ..... Nov. 29, 1910
Stevenson, Henry ..... Aug. 18, 1888
Tristram, H. B. ..... March 8, 1906
Wharton, Henry T. ..... Sept. —, 1895
Woodhouse, Samuel W. ..... Oct. 23, 1904

Members.

Brown Herbert.....May 12, 1913
Fannin, John.....June 20, 1904
Hardy, Manly.....Dec. 9, 1910
Judd, Sylvester Dwight.....Oct. 22, 1905
Knight, Ora Willis.....Nov. 11, 1913
Ralph, William LeGrange.....July 8, 1907
Torrey, Bradford.....Oct. 7, 1912
Whitman, Charles Otis.....Dec. 6, 1910

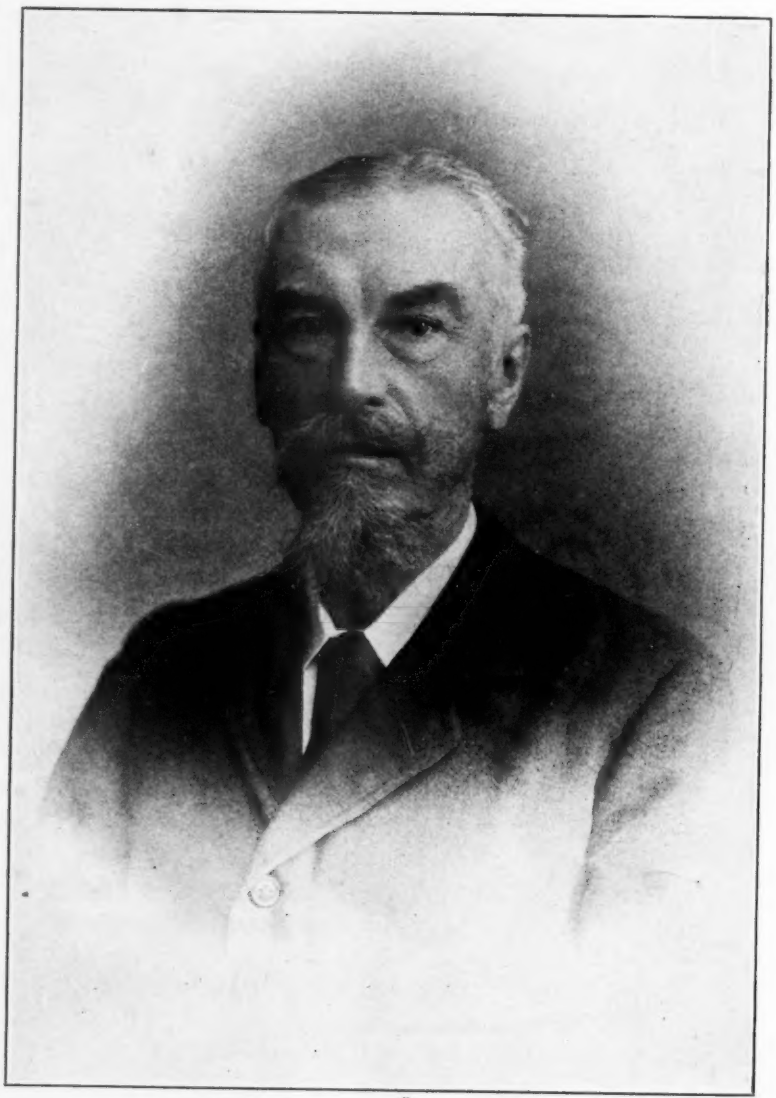
Associates.

Adams, Charles F.....May 20, 1893
Allen, Charles Slover.....Oct. 15, 1893
Antes, Frank T.....Feb. 6, 1907
Atkins, Harmon Albro.....May 19, 1885
Avery, William Cushman.....March 11, 1894
Bailey, Charles E.....——, 1905
Barlow, Chester.....Nov. 6, 1902
Baur, George.....June 25, 1898
Beckham, Charles Wickliffe.....June 8, 1888
Bill, Charles.....April —, 1897
Birtwell, Francis Joseph.....June 29, 1901
Boardman, George Augustus.....Jan. 11, 1901
Bolles, Frank.....Jan. 10, 1894
Brackett, Foster H.....Jan. 5, 1900
Breese, William Lawrence.....Dec. 7, 1889
Breninger, George Frank.....Dec. 3, 1905
Brennan, Charles F.....Mar. 21, 1907
Brokaw, Louis W.....Sept. 3, 1897
Brown, John Clifford.....Jan. 16, 1901
Browne, Francis Charles.....Jan. 9, 1900
Brownson, W. H.....Sept. 6, 1909
Burnett, Leonard E.....March 16, 1904
Butler, Jefferson.....Oct. 23, 1913
Cairns, John S.....June 10, 1895
Call, Aubrey Brendon.....Nov. 20, 1901
Campbell, Robert Argyll.....April —, 1897
Canfield, J. B.....Feb. 18, 1904
Carleton, Cyrus.....Nov. 15, 1907
Carter, Edwin.....—— 1900
Carter, Isabel Paddock.....Sept. 15, 1907
Chadbourne, Mrs. Arthur Patterson.....Oct. 4, 1908

CHARLES, FRED LEMAR.....May 6, 1911
CLARK, JOHN NATHANIEL.....Jan. 13, 1903
COE, W. W.....April 26, 1885
COLBURN, WILLIAM W.....Oct. 17, 1899
COLLETT, ALONSO M.....Aug. 22, 1902
CONANT, Mrs. THOS. O.....Dec. 28, 1907
CORNING, ERASTUS, Jr.....April 9, 1893
DAFFIN, WM. H.....April 21, 1902
DAKIN, JOHN ALLEN.....Feb. 21, 1900
DAVIS, Mrs. SUSAN L.....Feb. 13, 1913
DAVIS, WALTER R.....April 8, 1907
DAVIS, Mrs. WALTER R.....Feb. —, 1913
DEXTER, NEWTON.....July 27, 1901
DODGE, JULIAN MONTGOMERY.....Nov. 23, 1909
ELLIOTT, SAMUEL LOWELL.....Feb. 11, 1889
FAIRBANKS, FRANKLIN.....April 24, 1895
FARWELL, Mrs. ELLEN S.....Aug. 6, 1912
FERRY, JOHN FARWELL.....Feb. 11, 1910
FISHER WM. HUBBELL.....Oct. 6, 1909
FOWLER, JOSHUA LOUNSBURY.....July 11, 1899
FULLER, CHARLES ANTHONY.....Mar. 16, 1906
GESNER, ABRAHAM HERBERT.....April 30, 1895
GOSS, BENJAMIN FRANKLIN.....July 6, 1893
HALES, HENRY.....Nov. 6, 1913
HATCH, JESSE MAURICE.....May 1, 1898
HILL, WILLIAM H.....Oct. —, 1913
HOADLEY, FREDERICK HODGES.....Feb. 26, 1895
HOLMES, LaRUE KLINGLE.....May 10, 1906
HOOPES, JOSIAH.....Jan. 16, 1904
HOWE, FLORENCE A.....July 1, 1913
HOWE, Miss LOUISE.....Sept. 13, 1912
HOWLAND, JOHN SNOWDON.....Sept. 19, 1885
INGERSOLL, JOSEPH CARLETON.....Oct. 2, 1898
JENKS, JOHN WHIPPLE POTTER.....Sept. 27, 1894
JESURUN, MORTIMER.....March —, 1905
JOUY, PIERRE LOUIS.....March 22, 1894
KELKER, WM. A.....Feb. 15, 1908
KNIGHT, WILBUR CLINTON.....July 8, 1903
KNOX, JOHN C.....July 9, 1904
KNOX, JOHN COWING.....June 1, 1904
KOCH, AUGUST.....Feb. 15, 1907
KUMLIEN, LUDWIG.....Dec. 4, 1902
KUMLIEN, THURE.....Aug. 5, 1888
LAWRENCE, ROBERT HOE.....April 27, 1897
LEE, LESLIE ALEXANDER.....May 20, 1908
LINDEN, CHARLES.....Feb. 3, 1888

LLOYD, ANDREW JAMES.....June 14, 1906
MABBETT, GIDEON.....Aug. 15, 1900
MAITLAND, ALEXANDER.....Oct. 25, 1907
MARBLE, CHARLES C.....Sept. 25, 1900
MARCY, OLIVER.....March 19, 1899
MARIS, WILLARD LORRAINE.....Dec. 11, 1895
MARSDEN, HENRY W.....Feb. 26, 1914
MCEWEN, DANIEL C.....Nov. 1, 1909
MCKINLAY, JAMES.....Nov. 1, 1899
MEAD, GEORGE SMITH.....June 19, 1901
MINOT, HENRY DAVIS.....Nov. 13, 1890
MORRELL, CLARENCE HENRY.....July 15, 1902
NICHOLS, HOWARD GARDNER.....June 23, 1896
NIMS, LEE.....March 12, 1903
NORTHROP, JOHN I.....June 26, 1891
PADDOCK, ISABEL M.....Sept. 15, 1907
PARK, AUSTIN F.....Sept. 22, 1893
PAULMIER, FREDERICK CLARK.....March 3, 1906
POMROY, GRACE V.....May 14, 1906
RAGSDALE, GEORGE HENRY.....March 25, 1895
READY, GEORGE H.....March 20, 1903
RAWLE, FRANCIS WILLIAM.....June 12, 1911
REED, CHESTER A.....Dec. 15, 1912
RICHARDSON, JENNESS.....June 24, 1893
ROBINS, MRS. EDWARD.....July 2, 1906
SAND, ISABELLA LOW.....April 20, 1906
SELOUS, PERCY SHERBORN.....April 7, 1900
SLATER, JAMES H.....Feb. —, 1895
SLEVIN, THOMAS EDWARDS.....Dec. 23, 1902
SMALL, EDGAR ALBERT.....April 24, 1884
SMALL, H. W.....Mar. 12, 1912
SMITH, CLARENCE ALBERT.....May 6, 1896
SMITH, MRS. RUTH C.....Jan. 1, 1912
SNOW, FRANCIS HUNTINGTON.....Sept. 20, 1908
SOUTHWICK, JAMES MORTIMER.....June 3, 1904
SPAULDING, FRED B.....Oct. 22, 1913
STOWE, W. H.....March —, 1895
SWEIGER, MRS. J. L.....March 23, 1907
TAYLOR, ALEX. O'DRISCOLL.....April 10, 1910
THOMPSON, MILLET T.....Aug. 7, 1907
THORNE, PLATTE MARVIN.....March 16, 1897
THURBER, EUGENE CARLETON.....Sept. 6, 1896
UPHAM, MRS. WILLIAM H.....Nov. 29, 1912
VENNOR, HENRY GEORGE.....June 8, 1884
WATERS, EDWARD STANLEY.....Dec. 26, 1902
WELLES, CHARLES S.....Feb. 24, 1914

WILLARD, SAMUEL WELLS.....May 24, 1887
WILSON, SIDNEY.....Nov. 22, 1911
WISTER, WILLIAM ROTCH.....Aug. 21, 1911
WOOD, WILLIAM.....Aug. 9, 1885
WOODRUFF, EDWARD SEYMOUR.....Jan. 15, 1909
WORTHEN, CHARLES K.....May 27, 1909
YOUNG, CURTIS CLAY.....July 30, 1902



P. L. Sclater.

THE AUK:

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IN MEMORIAM: PHILIP LUTLEY SCLATER.[1]

Born 4th Nov., 1829 — Died, 27th June, 1913.

BY D. G. ELLIOT, D. SC., F. R. S. E., &C.

Plate I.

A PRINCE in the realm of Zoological Science has fallen, and I am called here today to bid you look upon his face, and hearken to the records of his deeds. Death, whom the Poet has called "The Beautiful Angel," has in recent years frequently visited within our ranks, and many and wide are the gaps he has made, until the brilliant cohort that embraced all of our noblest and best, is now shattered and dispersed, leaving of its talented members, but a sorrowing remnant, survivors of a glorious host.

Of all those who did brilliant work during the past sixty years, and whose familiar places know them now no more, it would seem almost invidious to select by name any particular member of that celebrated company, which made the middle and latter part of the last century glorious in our annals, a few survivors of whom even extending its renown into the opening of this one, which we have been privileged to witness.

But high as is the rank in our science which we willingly accord to many of that distinguished band, and which was one of the glories of the Victorian Era, yet there was one who occupied a

[1] Address delivered 11th November, 1913, at the thirty-first stated meeting of the American Ornithologists' Union.

commanding position, whose name was known wherever in the world the study of ornithology held a place, and whose labors were persistent and never ceasing over a period longer than that allotted to the majority of mankind, and Philip Lutley Sclater has long been recognized as one of the great leaders and exponents of our science.

He was born on the 4th of November, 1829, at Tangier Park, in Hampshire, the country residence of his father, William Lutley Sclater, Esq., and his boyhood was passed at "Haddington House," another of his father's estates, and there, in the celebrated locality sacred to the memory of Gilbert White of Selborne, he fostered his taste, and love for the study of birds. I say fostered intentionally, for I believe an ornithologist or naturalist, like the poet, must be born and not made, and if he has not the "Divine Afflatus," his labors will be but fitful, lacking the soul, and his spasmodic efforts will come to naught. But our friend was born to the 'Purple,' his lineage was true, and in the pursuit of his loved birds, he gave action and expression to the spirit that was in him.

At ten years of age he was sent to a famous school at Twyford near Winchester and when thirteen years old he went to Winchester College and three years later became a scholar of Corpus Christi College, Oxford, but being under age he did not become a resident at the University until 1846. At that time Strickland was a reader in geology at the University and he was Sclater's instructor in scientific ornithology, and here he began his collection of bird skins, at first confining himself to those species found in the British Isles.

In 1849 he received the degree of Bachelor of Arts, and he continued for two more years at the University devoting himself to the study of natural history and modern languages, and became familiar with French, German and Italian. In 1851, he began the study of law, and became a student of Lincoln's Inn, and in 1855 he was admitted a Fellow of Corpus Christi College, and was also called to the bar, and followed the Western Circuit for several years.

In 1856 he made his first visit to America, going west as far as Lake Superior and the upper waters of the St. Croix, which river he descended in a canoe to the Mississippi, and later published an account of his journey in the third volume of "Illustrated Travels."

In Philadelphia he met at the Academy of Natural Sciences, Baird, Cassin, Leidy, and other well known scientists, and passed considerable time studying the splendid collection of birds possessed by that Institution.

Returning to England he remained for several years in London practicing law and studying natural history, and was a constant attendant at the meetings of the Zoological Society.

Nearly twice the number of years allotted to a generation of mankind has passed away, since Sclater and I first met. It was in London, where I had come from Paris, after a considerable stay upon the continent studying in the various museums, and preparing the Monograph of the Pittas. On going to the house to which I was directed, quite an unpretentious one as I remember it, I ascended two flights of stairs after entering, and knocked at the door of a room which was opened by Sclater himself, and on giving my name was greeted with a cordial "Come in, come in, there are a few of us here talking about birds, come and join us." I found there a small company of young men, the names of most of whom have since become known wherever ornithology holds its sway, and there were laid the foundations of many friendships which death has alone terminated. I brought an account of Mitchell's death in Paris, Sclater's predecessor in the office of Secretary of the Zoological Society, rumors of which had reached London, but no details. Mitchell had resigned, and Sclater had been nominated for the office by Owen and Yarrell, and elected in the previous April. He had only just entered upon his duties, and he found the publications of the Society much behind in their regular issue, the state of the Gardens not what it should be, and many reforms needed, which during the next three years were established, and put into effect, and the "Proceedings" and "Transactions" brought up to date. At that time Sclater was tall and slender, with an attractive smile and cordial manner. He remained the most active power and influential officer of the Society for fifty years, and under his leadership it was raised to the first rank in dignity and usefulness, among the kindred institutions of the world, as well as in the importance and beauty of its publications.

Although when Sclater commenced to make his collection of bird skins at Oxford, he intended not to restrict himself to any one

country, but to include the birds of the world, he soon found this would be too great an undertaking, and he decided to confine his investigations to the avifaunas of Central and South America, and it was in those regions the greater part of his work was accomplished. But of course, as secretary of a society which carried on its works practically over the entire world, he was led to investigate from time to time families and species far removed from his chosen field of labor, and he published important papers and memoirs on mammals and birds of Asia and Africa and other eastern lands.

In 1858 he published his scheme for the six great geographical divisions of the earth. These were the Nearctic — including Greenland, and all North America and the northern half of Mexico; Neotropical — southern half of Mexico, West Indies Islands, Central America, and South America, with the Falkland and Galapagos Islands; Palaearctic — all Africa north of the Atlas Mountains, Europe, Asia Minor, Persia, Asia north of the Himalayas, northern China, Japan and Aleutian Islands; Ethiopian — Africa, south of the Atlas range, Madagascar, Bourbon, Socotra and Arabia to the Persian Gulf; Indian — India, Ceylon, Burma, Malacca, Asia south of the Himalayas, south China, Philippines, Borneo, Java, Sumatra and adjacent islands; Australian — Papua, Australia, Tasmania and the islands of the Pacific Ocean.

This arrangement was at once accepted as one admirably conceived, and for generalizing a geographical distribution on a broad scale it will remain as evidence of Sclater's skill and foresight in establishing the natural boundaries of birds upon the earth.

I read not long ago in one of our metropolitan dailies, in a short notice of Sclater's career, after mentioning this arrangement proposed by him, it stated that "it was said, he paved the way for Darwin." This, of course, was merely a layman's short-sighted view, and no one would be more quick to decline the honor than Sclater himself, for no one paved the way for the great investigator, he hewed his own road, and no man was ever able to walk abreast with him upon it, save one alone, Wallace.

The meetings of the Society, which were held twice a month except in summer, during the period Sclater was Secretary, were most interesting, and in the sixties and seventies of the last century, when I resided abroad, I was usually present, indeed at one time

I was a member of the Publication Committee. The number of eminent naturalists present on those evenings was marvellous, and no such body of celebrated men, all members of one Zoological Society had ever before been assembled together, and we may believe it will be a long time before one equal to it will be again seen, for it was the height of zoological activity in the world, when indeed there were giants in the land. Listen to the roll of those meetings so you may know who were the leaders at that time in Europe in the various branches of natural science, and as I call their names, no response comes to my ear, save the sound of the funeral bell tolling for those who have passed away.

I begin with the ornithologists, some of whom, however were equally great in other branches of science. *Philip Lutley Sclater*, and *Osbert Salvin*, devoted friends, co-laborers in a large number of most important papers, synopses and volumes treating of the birds of the Neotropical Region. *Alfred Newton*, steadfast friend and charming companion, who published comparatively little during his career but was probably better versed in ornithological lore than any man of his time, and who will be remembered by the Ootheca Wolleyana, and the Dictionary of Birds. *John Gould*, famous for the great series of splendidly illustrated volumes. *Richard Bowdler Sharpe*, at that time the Librarian of the Society, but afterward head of the Department of Birds in the British Museum, and whose enduring monument will be that great Catalogue of Birds founded upon the unrivalled collection in that institution. *George E. Shelley*, author of the Birds of Egypt, Monograph of the Sun Birds, beautiful representatives in their metallic plumage, of our fairy Hummers, and the great work on the Birds of Africa. *Lord Lilford* known for his beautiful illustrations of British Birds. *Henry Seebohm*, explorer of the desolate Tundras of far away Siberia, author of "British Birds," "The Charardriidæ" and other works. *John Henry Gurney*, during his life time the great authority on raptorial birds. *Henry E. Dresser*, author of the great work on the Birds of the western Palaearctic Region, and other works. *Henry B. Tristram*, Canon of Durham, and whose name brings to our minds the feathered inhabitants of the sacred land of Palestine, deserted and stricken Moab, and the thirst lands lying along and upon the placid waters of the Sea of Death. *Edgar Leopold Leyard*,

talented brother of the illustrious discover of Nineveh, who brought with him the breath of the South African veldt, and the knowledge of the feathered creatures that wing their way over its wide expanses, as his work on the birds of that region proved. *Robert Swinhoe*, modest of mien, handsome of face, versed in the birds of China and far distant Formosa. *Arthur Penrhyn*, better known as Viscount Walden, and later as the Marquis of Tweeddale, and whose voluminous papers on the birds of the Philippine Islands and those of other eastern lands are well known. *Howard Saunders*, master of the long winged skimmers of the seas, of continental coasts, and the shores of the far flung islands of the main. *Frederic Ducane Godman*, chief editor and co-author with *Osbert Salvin* of the colossal work on the natural history of Central America, the "Biologia Centrali Americana." Then there rises before me the majestic figure with the lion-like head covered with silvered hair and lengthened beard of *Edward Blyth*, whose mind was stored with the knowledge of the birds and quadrupeds of India and other eastern lands, and his colleague and coworker in the same fields *Dr. T. C. Jerdon Alston*, already bearing in his delicate form the seeds of the complaint that cut all too soon his promising career. At times there would be present celebrated ornithologists from the Continent and during the French and German war Jules P. Verreaux left his native city, Paris, on the advent of the German army, and came to London and occupied Sclater's private room in the library building, which had been courteously placed at his disposal. Besides these there were others not strictly ornithologists, but very eminent in their various chosen fields of work. *Sir Richard Owen*, with his elaborate contributions on the great Dinornis, the extinct giant birds of New Zealand. *Sir William Henry Flower*, great comparate anatomist, and later joint author with *Lydekker* of "Animals Living and Extinct." *Thomas Huxley* and *William Kitchen Parker*, world widely known, and *St. George Mivart*, celebrated with the two others just named for their intimate knowledge of animal anatomy. Then we recognize *Garrod*, *Forbes* and *Murie*, successive prosectors of the Garden, and whose many and elaborate papers shed a flood of light upon the affinities, and their proper places in classifications of the animals submitted to their scalpels.

The artists were represented: there came Joseph Wolf with his

gentle ways and pleasant face, the greatest animal draughtsman and painter of any age, and Keulemans, happy in his skill for delineating birds. I do not remember ever to have seen at those meetings either John Edward or George Robert Gray, but the former's physical disability which constrained him to move about in a rolling chair was sufficient to explain his absence, but I know of no reason why George Robert should not have been present, nor did I ever see there, either Darwin or Wallace. It may have been that as they lived out of London, it was not convenient for them to come into town at night, but both those eminent men were frequently in the library during the day and I have often been with them on those occasions, Darwin seeking information on some particular subject he was then investigating, demanding facts not theories, for which he did not seem to have any particular use.

Those were interesting meetings, and at times the discussions were very lively, and those whose mental artillery was not of the requisite weight had best keep away from the arena.

That was a glorious company of eminent men, broad-minded and far-seeing, whose field of labor was as wide as the world, untrammelled by the artificial, oft changing boundaries of States, Principalities or Powers.

And where now are all those brilliant souls! They have passed over the threshold of that shining portal, through which all the living have seen at times many of those they loved and cherished, vanish from tear dimmed eyes, for, of all those whose names I have mentioned, but two remain with us today, Dresser and Godman long passed the number of years allotted to men upon the earth. The survivors of those meetings stand like lone columns, erect, lifting their heads aloft on a wide deserted plain, surrounded on every side by ruins, and when in thought I sweep aside the intervening years and stand again in that once crowded room, and look on row upon row of vacant chairs, which now no man can fill, the heart yearns with a fervent longing for

> "A touch of a vanished hand
> And the sound of a voice that is still."

On the establishment of the Ibis in 1859, the members of the British Ornithologists' Union, of which Sclater was a founder,

selected him as its first editor, and he continued in the office for six years, when he was succeeded for a similar period by Alfred Newton, followed by Osbert Salvin, who was the editor for the next six volumes, composing the third series. Then Sclater again became one of the staff, and he remained either sole editor or associate editor up to the beginning of the last year of his life.

It would seem that his constant work as Secretary of the Zoological Society, in connection with the publication of his numerous papers and volumes that were constantly appearing, would have been quite sufficient for him, without assuming the responsibility and labor attached to the publication of an important journal, but his capacity for work seemed unlimited, and he associated himself with Sharpe in establishing the British Ornithologists' Club, and usually presided at the meetings, and delivered an address at the beginning of the season. I have been his guest a number of times at the annual dinner, and of course sat at his side, and he was always a dignified presiding officer, of courteous demeanor. He appeared to delight in work, and once he told me that there never was a time when his pockets were not full of proofs requiring reading and correcting, and wherever he went, all his spare moments were occupied in this to most of us, wearisome and distasteful labor.

He became a member of the British Association for the Advancement of Science in 1847, and was Secretary of Section D. for a number of years, and ultimately its President in 1875, and delivered an address, taking for his subject, "The present state of our knowledge of geographical zoology," and in the succeeding year was elected one of the two general Secretaries, and served for five years, when he became ex-officio a member of the council.

In 1874 he served as private secretary to his brother the Right Hon. George Sclater-Booth, M. P., afterwards Lord Basing, who was president of the local government board, and served for two years, and was offered a permanent position in the civil service, which he declined as he would not give up his natural history work.

The library of the Zoological Society is greatly indebted to Sclater's knowledge of works bearing on that science, and to his activity in procuring the needed additions to make it complete. Every newly published work of merit was obtained as soon as possible after it was issued from the press, and there is no place

in the world where a naturalist depending upon books to aid him in his investigations can more easily and satisfactorily accomplish the completion of his labor.

In 1884 Sclater came to America for the second time, the reason being the meeting of the British Association that year in Montreal, and he was present at one of the early meetings of the American Ornithologists' Union. I saw much of him during his stay in New York at that time. He did no scientific work on this trip, but met many of his old friends and made the acquaintance of a number of those whom heretofore he had known only by reputation.

Sclater's position as Secretary of the Zoological Society gave him great opportunities for seeing and acquiring specimens of birds and mammals, and other zoological material.

His office at 11 Hanover Square, was the general meeting place of all naturalists in London, whether residents or visitors, and he was in constant correspondence with all those who were interested in natural science in every part of the world. Consequently material poured in upon him from all quarters, and his opportunities for discovering new forms were equalled by few and surpassed by none. It is not surprising therefore that those he supplied with names amounted to considerably over a thousand, and his papers on many scientific subjects to something like fifteen hundred.

Although ornithology was his chief study, he did a large amount of work in mammology, and he made important contributions to the families of the Deer, and Rhinoceros, and on various genera of American and African Monkeys. His published works of which he was the sole author or in co-operation with others, amounted to nearly thirty, of which, in mammalogy the most important was "The Book of Antelopes," by Sclater and Thomas, in four volumes containing descriptions of all the known species, and life histories so far as known, and 100 colored plates of many forms; and in birds, perhaps, "The Exotic Ornithology" by Sclater and Salvin, issued in large and small folio, with one hundred colored plates of birds of the Neotropical Regions.

Sclater was an indefatigable worker, never seeming to grow weary, and no one with any less powers for continuing steadily at his task for long periods could have possibly accomplished as much as he did, even in the course of an equal number of years.

He contributed Volumes XIII, XIV and XV of the "Catalogue of Birds," published by the British Museum, and he was co-author with W. H. Hudson in a work on "Argentine Ornithology," a valuable contribution to our knowledge of the birds of that southern land. Indeed in almost any field of ornithology which has been investigated during the past half century, Sclater's ceaseless activities are manifested and he has impressed his vigorous personality upon the scientific literature of his time. He was above all a systematic naturalist, most conservative in his methods and beliefs, and never was reconciled to the introduction of trinominals, adhering tenaciously, as did many of his contemporaries to the Linnean system of binominals. He loved the old ways, and looked askance and with suspicion upon 'innovations.'

Naturally one who was so well known far and wide, and who had done so much valuable scientific work, should receive many honors, and have his name enrolled among the members of many Societies. I have neither the time or space to enumerate them, suffice to state, that he was an Honorary Member of nineteen, Corresponding Member of thirteen, Member of ten, and Fellow of three of the scientific societies of the world, altogether a varied membership in forty-five, and I may probably have missed some.

During the greater part of his career he had continued to add to his collection of birds, and in 1886, when it had amounted to nearly nine thousand specimens of over three thousand species, he transferred it to the British Museum, whose collection augmented at about the same time, by those of Gould, Salvin and Godman, Hume, and others, became unrivaled in the world. After Sclater had ceased to be Secretary of the Zoological Society, he published comparatively little, and once I said to him that I thought he must feel lonesome now freed as he was from his many official duties, he quickly replied, "not at all, why should I be, I ride to hounds several times a week, and I have 'The Ibis' which keeps me pretty busy, and really I do not seem to have any spare time at all."

When I went to Africa in 1896, on arriving in London, the first person I consulted regarding my expedition was my old friend, then Secretary of the Society. I told him I proposed to go through Mashonaland into the countries beyond along the line of the Zambesi, by way of Beira. He pointed out the imminence of the war

with the Matabili the greatest fighting tribe in Africa, and which soon after broke out and devastated all that region and he asked me what I would do to protect myself and train, against a hostile nation in arms. I saw the point and replied, "Very well I will go through Masailand," a territory then little known or traversed, by way of Zanzibar and Mombasa, but he strongly opposed this idea, for it so happened he was then in constant correspondence with that particular part of Africa, as his third son, Guy Lutley Sclater was an officer in the Royal Engineers and was then engaged in the construction of the railroad from Mombasa, which eventually reached the shores of the Victoria Nyanza. He told me there was great unrest among the tribes, that the rhinder-pest had nearly destroyed the natives' cattle, and had made serious inroads among the bovine Antelopes; that fever was prevalent and severe along the line of the road, which proved unhappily too true, for his son died of an attack of it, before I returned to England; and he suggested I should go through Somali-land, into the countries beyond, north of the equator, and this I subsequently did.

I only saw Sclater a few times after he left the service of the Society. He was then living at Odiham Priory, about forty miles from London, and on each occasion, he came up to town to see me. Although it had been some years since we last met, in the first interview, I saw but little change in him. He was still active, both physically and mentally, took as much interest in natural science as ever, and he told me in the course of conversation, that he still rode to hounds once or twice a week. A few years after, I was again in London, working daily in the British Museum on the Primates, and he came again to see me, this time however, accompanied by his eldest son William Lutley Sclater, and I thought I saw a change. He was not so erect, nor so physically active, and when he entered my room, he seemed weary, and it was evidently a relief for him to be seated. But his mind was as clear and active as ever, and during his visit he asked many questions about my work, in which he took great interest, for he had written a good deal on the Primates himself in the years gone by; but when he rose and took my hand to say good-bye, I felt it was a final parting, as I was soon to leave England, and as he passed towards the door, I said in a low tone to his son who had lingered behind, "take care of your

father, he is not nearly so strong as he was," and my old friend passed out of my sight on earth forever. A few more years were to pass swiftly by, and the summons came to cease all earthly labor. The energetic toiler was still arrayed in the panoply of work, which he had carried so well over such a long series of years, his faith had not abated, nor his courage failed, and he still grasped in his aged hands, his familiar weapons the pen and the book, which he had wielded so long and so effectively. But the time had come when he was to "cease from his labors, and his works were to follow him."

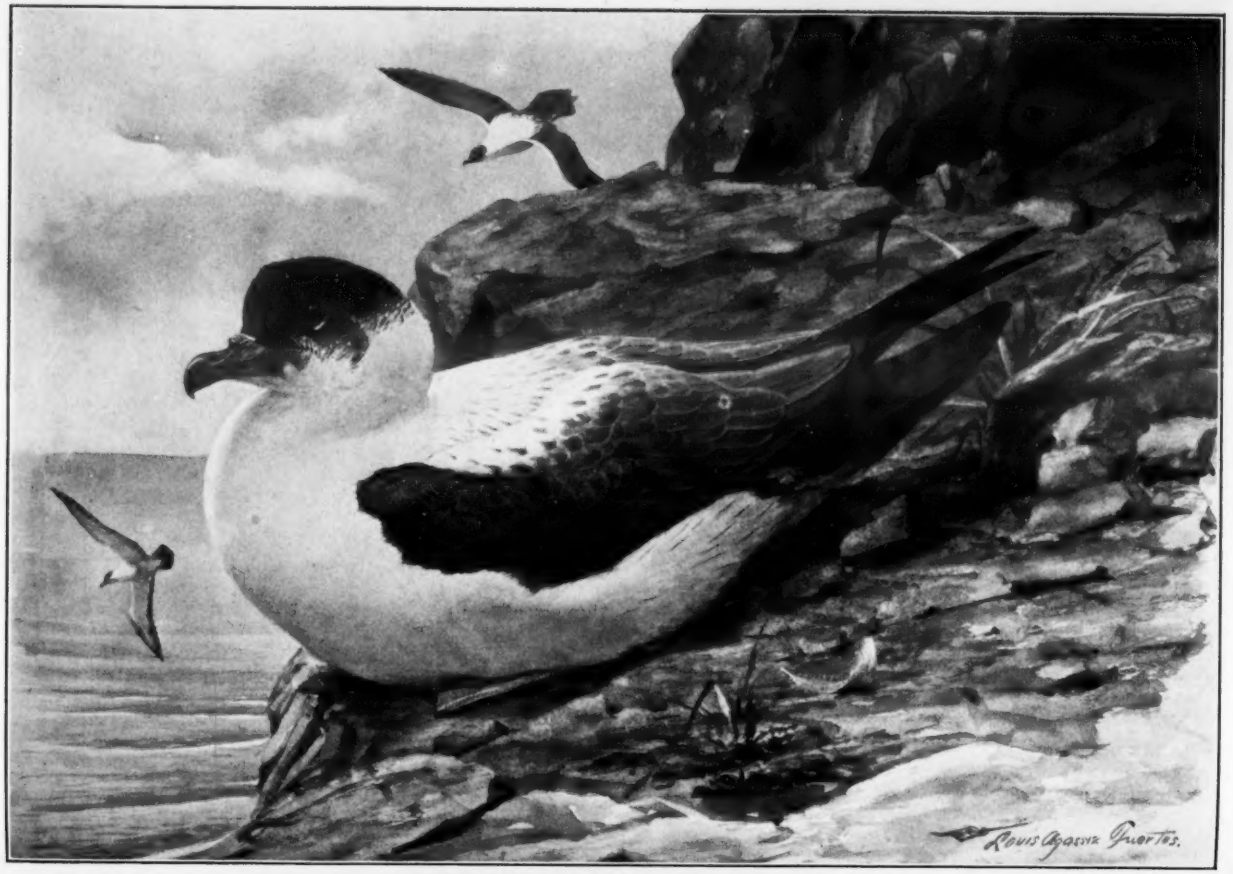
The day was drawing to its close in the beautiful month of June, and peace like a blessing from another world, seemed to hover over the land, and Nature rejoiced in her smiling fields, and the opened buds and blossoms; the sun was slowly sinking to its rest behind the western hills, flooding the fleecy clouds floating in the blue vault above with crimson and with gold; from the east, the shadow of the coming night was creeping slowly, slowly onward, casting a pall over the valleys; the evening breeze with its soft breath was playing among the leaves, and calling forth the perfume of the flowers, and the nightingales, in their own fair land, chief minstrels of the feathered choir, had sounded in one great burst of melody, the opening chords of the vesper hymn,— when there came to our friend, waiting, ever waiting, the murmur of softly moving wings heralding the presence of the "Beautiful Angel," who gently led him out of his earthly mansion, just across the threshold, to the bright land beyond.

PRELIMINARY DESCRIPTION OF A NEW PETREL.

BY ROBERT CUSHMAN MURPHY.

Plate II.

ON the return voyage of the recent expedition to the island of South Georgia conducted by the American Museum of Natural History and the Museum of The Brooklyn Institute of Arts and



ÆSTRELATA CHIONOPHARA MURPHY.

Sciences, a stop of one day was made at Trinidad Islet in the south tropical Atlantic. Among the birds collected by the writer on that occasion is a single specimen of an *Æstrelata* which is new to science.

The new species belongs to that division of the genus characterized by an exposed white area on the under side of the outer primary, and in its measurements it approximates its three congeners, *Æ. arminjoniana* Gigl. and Salvad., *Æ. wilsoni* Sharpe, and *Æ. trinitatis* Gigl. and Salvad., which likewise are known only from the vicinity of the same remarkable islet. In plumage, however, it resembles no other *Æstrelata*, its white mantle, flecked with spots like ermine-tails, making it at once the most distinctive and most beautiful of its kind. Further notes on the affinities of the species will be presented in a forthcoming paper. I propose to name it

Æstrelata chionophara[1] sp. nov.

Type in American Museum of Natural History, R. C. M. No. 1982, adult ♀, Trinidad Islet, lat. 20° 30′ S., long. 29° 22′ W., April 8, 1913.—Pileum, sides of head, wings, rump, upper tail-coverts, and tail blackish-brown, the concealed portions of all the feathers white; a few interspersed white filoplumes on occiput; mental apex, lores, cheeks, fore part of cervix and sides of neck mottled blackish-brown and white; hinder cervix and interscapulum white, the feathers with dark shafts, faint anteriorly, which expand to form conspicuous rhomboidal speckles on the middle and lower back; scapulars white with dark shaft streaks, the exposed portion of outermost dark; under surface except chin white, the under tail-coverts broadly tipped with blackish-brown; under wing-coverts white, a few dark shafts and mottlings toward margin of wing; axillaries white with dark shafts, two of them on either side broadly edged on one web with blackish-brown; sides marked slightly with dark feather shafts; feathers of lower flanks tipped with blackish-brown chiefly on their outer vanes. Bill (in life) bright flesh color flecked with black, the unguis chiefly black; iris brown; feet and legs (in life) pale flesh color with a few black freckles on webs. Length (skin) 376 mm., wing 285, tail, central rectrices 115, lateral rectrices 81, culmen 30, tarsus 33, middle toe with claw 51.

[1] From Χιόνειος = snowy, and Φάρος = a mantle.

A PLEA FOR THE CONSERVATION OF THE EIDER.[1]

BY CHARLES WENDELL TOWNSEND, M. D.

THE treatment of that magnificent duck the Eider (*Somateria dresseri*) along our Atlantic coast is rapidly leading to its extermination. This duck which is locally known as "Sea Duck," "Laying Duck," "Shoreyer," "Eskimo Duck," "Moynak," and "Metic," is everywhere diminishing in numbers. In Maine they were at one time reduced to a few pairs, but, by enforcement of laws and by reservations watched over by wardens, they are beginning to increase. I believe there are only two or three cases of their breeding at the present time on the Nova Scotia coast. On the Newfoundland coast their numbers are pitifully few where once they abounded. The coast of Labrador formerly swarmed with these birds, and the islands were thickly covered with their nests. All the ornithologists from the time of Audubon to the present day who have visited this coast have bewailed the fact that the Eider was signaled out for destruction.

In 1906 Dr. G. M. Allen and I saw only about seventy of these birds on the long stretch of the eastern coast of Labrador between Battle Harbor and Hamilton Inlet. This is a region that is visited by a large number of Newfoundland fishermen in summer, and its coast is dotted with the fishing hamlets of the residents or liveyeres as they are called. The men know every nook and cranny of the coast, shoot the birds in great numbers in both fall and spring migrations, take their eggs and down whenever they find them and even shoot the setting females. In visiting their fishing traps in the height of the breeding season they often take their guns along with them so that few birds escape. North of Hamilton Inlet the Northern Eider (*Somateria mollissima borealis*) is persecuted by the Esquimaux of the Moravian villages as well as by the fishermen.

The same condition of affairs exist on the southern coast where Eiders are persecuted not only by the white fishermen but also by the Montagnais Indians, who, after disposing of their furs, the

[1] Read at the meeting of the American Ornithologists' Union, November 11, 1913.

result of their winter's work, cruise along the coast in sail-boat and canoe and feast on the Eider eggs and flesh.

In 1909 Mr. A. C. Bent and I found the ground about the Indians' encampments covered with Eider egg shells, and we saw Eider flesh being dried and smoked by the fires. Two men, who were ranging over the islands with pails had collected a hundred eggs in less than an hour's time. William Brewster described the method used by these Indians in 1881,— "They skirt the shores in canoes, keeping as close to land as the depth of water will permit. Meanwhile their dogs scent about among the trees quartering the ground like trained setters, and when a nest is discovered announce the fact by loud barking. The nests are usually within a few rods of the water, and the scent of the dogs is so keen that they rarely pass one. If the sitting bird can be caught or shot the opportunity is seldom neglected, for the half starved Indian neither knows nor respects considerations of mercy, or, perhaps we should call it policy,— which restrain more enlightened sportsmen on such occasions. Proceeding thus two men in a canoe will frequently ransack twenty miles of coast-line in a single day and find, probably, nearly every eider nest. The result of this systematic persecution cannot be doubtful or long delayed."

Mr. Abbott Frazer, who was in Southern Labrador in 1884 said of this bird, "They are persecuted with relentless energy by both man and beast from the time they arrive up to the time they leave, and the countless hoards that once inhabited this coast are fast disappearing, and it will not be long before the Eider of Southern Labrador, like the Eider of Grand Manan will be but a memory of the past."

It is natural that the fishermen and Indians should act thus, for Eider eggs are delicious eating and the flesh of the birds, at least of the female and young, is equally palatable. Both are generous in the amount of nourishment furnished. But these people are killing the goose that lays the golden egg, and the time is not far distant, where such methods prevail, before the Eider will be no more.

There is no reason why the Eider, which furnishes the valuable Eider-down of commerce, should not be made a source of considerable income, without any reduction of its natural abundance.

The principle of conservation can as well be applied to the Eider as to a forest. The conservation of the Common Eider of Europe (*Somateria mollissima*), a species that differs but very slightly from the American bird, has been practiced for many years in Iceland and Norway. The birds are rigidly protected during the nesting season and offered every encouragement. They are not allowed to be shot, and even the discharge of a gun in their vicinity is forbidden by law. Suitable nesting sites are furnished close to the houses and the birds become semi-domesticated, losing all fear of man. The people are allowed to take the eggs and down during the first of the season, but the birds are permitted to hatch out and rear a few young in order to keep up the stock. The last down is taken after the birds have left.

The following quotations from various authors show what can be done in the conservation of the Eider and what a profitable and pleasant business it may be made: "— A person," says Horrebow,[1] "as I myself have witnessed, may walk among these birds while they are sitting, and not scare them; he may even take the eggs and yet they will renew their laying as often as three times." According to the relation of Sir George Mackenzie,[2] "On the 8th of June at Vidöe, the Eider Ducks, at all other times of the year perfectly wild, had now assembled in great numbers to nestle. The boat, by which they approached the shore, passed through multitudes of these beautiful fowls, which scarcely gave themselves the trouble to go out of the way. Between the landing place and the Governor's house, the ground was strewn with them, and it required some caution to avoid treading on the nests. The Drakes were walking about uttering a sound very like the cooing of Doves, and were even more familiar than the common Domestic Ducks. All round the house, on the garden wall, on the roof, even in the inside of the house, and in the chapel, were numbers of ducks sitting on their nests. Such as had not been long on the nest generally left it on being approached; but those that had more than one or two eggs sat perfectly quiet, suffering us to touch them and sometimes making a gentle use of their bills to remove our hands."

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[1] Quoted by Nuttall.
[2] Travels in Iceland, p. 126. (Quoted by Nuttall.)

Baird, Brewer and Ridgway quote from C. W. Shepard, as follows: "The islands of Vigr and Oldey are their headquarters in the northwest of Iceland. In these they live in undisturbed tranquillity. They have become almost domesticated, and are found in vast multitudes, as their young remain and breed in the place of their birth. As the island (Vigr) was approached, we could see flocks upon flocks of the sacred birds, and could hear them cooing at a great distance. We landed on a rocky, wave-worn shore. It was the most wonderful ornithological sight conceivable. The Ducks and their nests were everywhere. Great, brown Ducks sat upon their nests in masses, and at every step started from under our feet. It was with difficulty that we avoided treading on some of the nests. On the coast of the opposite shore was a wall built of large stones, just above the high-water level, about three feet in height, and of considerable thickness. At the bottom, on both sides of it, alternate stones had been left out, so as to form a series of square compartments for the Ducks to nest in. Almost every compartment was occupied, and as we walked along the shore, a long line of Ducks flew out, one after the other. The surface of the water also was perfectly white with drakes, who welcomed their brown wives with loud and clamorous cooing. The house itself was a marvel. The earthen walls that surrounded it and the window embrasures were occupied by Ducks. On the ground the house was fringed with Ducks. On the turf slopes of its roof we could see Ducks, and a Duck sat on the door-scraper. The grassy banks had been cut into square patches, about eighteen inches having been removed, and each hollow had been filled with Ducks. A windmill was infested, and so were all the outhouses, mounds, rocks, and crevices. The Ducks were everywhere. Many were so tame that we could stroke them on their nests, and the good lady told us that there was scarcely a Duck on the island that would not allow her to take its eggs without flight or fear. Our hostess told us that when she first became possessor of the island the produce of down from the Ducks was not more than fifteen pounds in a year, but that under her careful nuture of twenty years, it had risen to nearly a hundred pounds annually. Most of the eggs were taken and pickled for winter consumption, one or two only being left in each nest to hatch."

Burton writing in 1875[1] says that not even a salute was permitted to be fired at Reykjavik for fear of frightening the Eider which was there a "barn door bird" and as "tame as horse-pond geese." He says "the turf is shaven and hollowed to make the nests — and the places are marked by pegs."

Slater[2] says of the Common Eider that it is "resident in large numbers; especially abundant round the coast, strictly preserved by law, and in consequence very tame. In Akureyri, for instance, the old ducks with their ducklings feed along the edge of the fjord quite close to the houses and road, and take no more notice of the passers-by than domestic ducks would do — which is very pretty. In winter they pack in immense flocks. The Eider down is, of course, the property of the owner of the land, and every inducement and protection is given to the birds, as the down is a valuable article of trade." Bernhard Hantzsch[3] says: "In consequence of the special protection, which man everywhere exercises over them, their numbers seem slowly to increase."

Nelson Annandale[4] says: "The one offence against the Icelandic bird laws which a native cannot commit with impunity is the slaughter of the eider-duck.— What is more important than many laws, namely public opinion, protects the species, and there seems to be a sentimental interest in it.— Probably it is due to the great tameness of the bird, which appears actually to seek the vicinity of a human dwelling for its nesting place and to frequent those parts of the coast which are more frequented by man.— The Icelandic eider-farms are frequently situated on little islands off the coast. Small circular or oblong erections of rough stones are made among the hummocks, to protect the brooding ducks from wind and driving rain.— All the seafowl in these farms become exceedingly tame, as no gun is allowed to be fired and every thing liable to disturb the ducks is carefully banished. Those who know how to handle them can even stroke the backs of the ducks as they sit on their eggs.— On such farms there is a separate building or large room entirely devoted to cleaning the down.

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[1] Ultima Thule or a summer in Iceland.
[2] Manual of the Birds of Iceland, 1901.
[3] Beitrag zur Kenntnis der Vogelwelt Islands, 1905.
[4] The Faroes and Iceland, 1906.

The apparatus consists of a series of oblong wooden frames, which may be either fixed in a horizontal position or held in the hand. Their number and size varies greatly, but in all cases the principle is the same, depending on the tenacity with which the down clings to anything on which it is thrown, partly because of its lightness and partly because of the structure of the individual feathers which compose it. Along the frames are stretched rather loosely, a number of strings which may be either of twine or of thongs of leather. The down is cast onto these near one end, and a spatula of wood or bone drawn briskly backwards and forwards over the other end. The down still clings to the strings, but all impurities, such as pieces of seaweed or grass, small stones, or coarse feathers, fall through to the ground."

Newton[1] says: "Generally the eggs and down are taken at intervals of a few days by the owners of the 'Eider-fold,' and the birds are thus kept depositing both during the whole season; but some experience is needed to insure the greatest profit from each commodity. Every Duck is allowed to hatch an egg or two to keep up the stock, and the down of the last nest is gathered after the birds have left the spot. The story of the Drake's furnishing down, after the Duck's supply is exhausted, is a fiction. He never goes near the nest." Annandale (loc. cit.) says: "It was formally the custom to take away all the down supplied by the female; but this practice was said to lead to great mortality among the ducks through exhaustion and nowadays each nest is generally rifled only once before the eggs are hatched, and then again after the young have left it."

The same conservation of the Eider exists in Norway. Stejneger[2] says: "All along the coast of Norway, where the bird is protected by law throughout the year, the common eider (*Somateria mollissima*), is now exceedingly common and very tame. The inhabitants take great care of the breeding birds, which often enter their houses to find suitable nesting-places, and cases are authenticated in which the poor fisherman vacated his bed in order not to disturb the female eider, which had selected it as a quiet corner wherein to raise her young. In another place the cooking of a family had to

[1] Dictionary of Birds, 1893–1896.
[2] Riverside Natural History.

be done in a temporary kitchen as a fanciful bird had taken up her abode on the fireplace."

When St. Cuthbert, that holy man, went to live a lonely life on Farne Island he tamed the Eiders and they are called St. Cuthbert's ducks even to this day.

Eider-down is not only extremely light and elastic but is also one of the poorest conductors of heat. It is therefore an ideal substance for preserving warmth and is the best material for coverlets, puffs, cushions etc. Its money value is considerable and there is always a demand for it in the markets of the world.[1] The retail price in Boston at the present time of well cleaned Iceland or Norwegian eider-down is $14 a pound. It is probable that each nest furnishes — as a very conservative estimate — from an ounce to an ounce and a third of down, therefore twelve to sixteen nests or breeding females are needed for each pound. Burton states that the annual supply of down in Iceland rose from 2,000 pounds in 1806 to 7,000 pounds in 1870. One can easily understand the great value of this product even if the producer receives only one half of the retail price. He could count on at least fifty cents a season for each breeding female in his Eider-fold.

Imagine the pleasure as well as profit that could be obtained along the coast of Labrador, Newfoundland, Nova Scotia and Maine if these birds were treated in the manner above described and flocked and nested about the habitations of man. Then, each dweller in suitable localities by the sea, could have his own flock of these beautiful birds, for the female is as beautiful in her modest dress of shaded and pencilled brown as is the male in his striking raiment of jet black and cream- and snow-white, delicate sea-green and dark navy-blue. The cooing notes, so long few or absent in many places, would again resound over the waters, and best of all, to the practical minded, the birds would pay well for their protection by gifts of eggs and of valuable eider-down.

How can the present senseless habit of destruction be stopped and this desirable state of affairs brought about? As a preliminary step in Labrador and Newfoundland I would suggest that a few islands scattered along the coast should be made bird reservations,

[1] The down obtained from dead Eiders, however, soon loses its elasticity and is of little value.

and carefully guarded by one or two families who live on or near the islands. These people should be allowed to take the first set of eggs and down, as well as the down left behind after the duck has hatched out the second set and has left for the season, but should not be allowed the use of fire arms, and their Eskimo dogs must be confined during the nesting season. In other words these people must not frighten the birds and must treat them kindly. The object of the experiment should be spread broadcast along the coast with the request for fair play, so as to restrain others from poaching and frightening the ducks on the reservation.

The rapidity with which the birds will respond to this treatment and the intelligence they will display in the recognition of the safety spots will surprise the people. This is the case wherever bird reservations are established. At Ipswich, Massachusetts, the shores of a small, protected pond are thronged with shore birds of many species which display almost no fear of man, while on the neighboring beaches, where they are shot, they are very wary. In the city of Boston the Charles River Basin and Jamaica Pond are the resort of numerous ducks that pay but little attention to the people, while in the sea and ponds nearby, where shooting is allowed, the ducks show their usual wildness.

It is useless to pass laws if they are not observed or if the sentiment of the community is against them. This reform, which will be of such great value to our northern sea-coast, can only be accomplished by education, and these bird reservations with their Eider-farms will be one of the best means to that end. It is for this purpose that I have written this and have quoted the convincing experiences of the natives of Iceland and Norway; and I hope that through the Moravians and Dr. Grenfell and the Catholic and other missionaries of Labrador, and the factors of the Hudson's Bay Company's Posts, and the independent fur-traders, and through the press of Newfoundland and Nova Scotia, and especially through the Governor General of Newfoundland and the Lieutenant Governor of Quebec, to all of whom I intend to send this little tract, the people will understand the great need and value of the conservation of the Eider.

ON THE HABITS AND BEHAVIOR OF THE HERRING GULL, LARUS ARGENTATUS PONT.

BY R. M. STRONG.

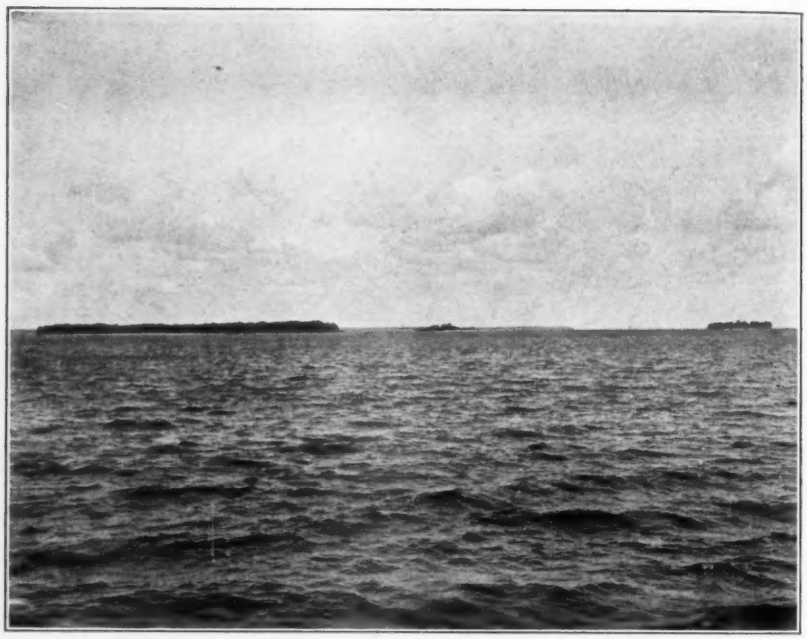
Plates III–X.

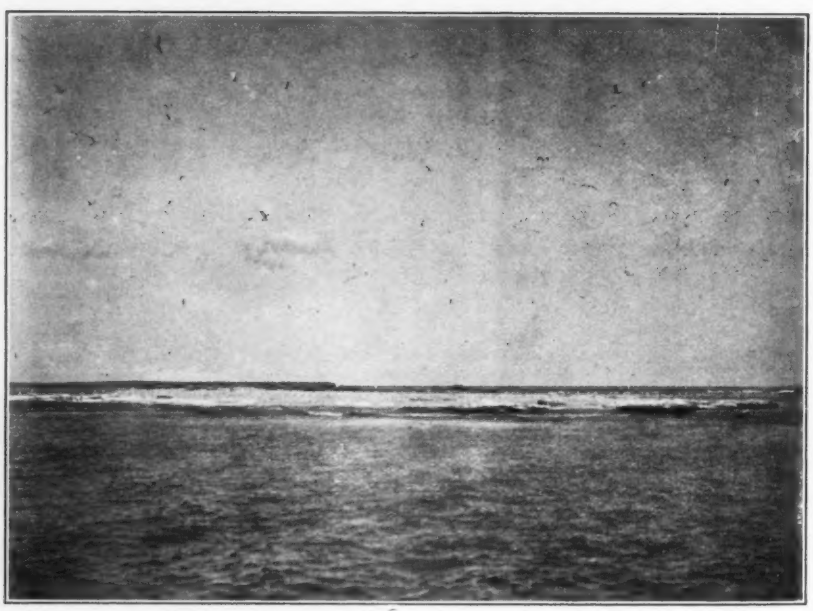
I. Introduction.
II. Methods.
III. Social or community relationships.
IV. Feeding habits.
V. Breeding habits.
1. Mating.
2. Nest construction.
3. Brooding.
4. Care of offspring.
5. General behavior of juvenals.
6. Development of bird after hatching and life cycle.
VI. Voice.
1. Introductory.
2. The "alarm cry".
3. The "challenge".
4. Other cries.
VII. Reactions to stimuli.
1. Auditory.
2. Visual.
3. Chemical.
4. Other reactions.
VIII. Special activities.
1. Flight.
2. Bathing and drinking.
3. Perching.
IX. Comparison of diurnal and nocturnal activities.
X. Variability and Modifiability in behavior.
XI. Migration.
XII. Summary.

I. INTRODUCTION.

It is the purpose of this paper to describe the results of work which was begun with the idea of studying bird habits intensively. I learned through Mr. Henry L. Ward, curator of the Milwaukee Public Museum, that colonies of Herring Gulls were to be found breeding on islands off both coasts of the peninsula which forms Door County, Wisconsin, i. e. in Green Bay and in Lake Michigan (See Fig. 1.)

These birds seemed to be especially favorable for my purpose because: (1) they nest in rather compact colonies on the ground and in more or less open places so that many individuals can be seen and studied to advantage, and (2) their considerable size and largely white plumage make them among the best bird subjects for the indispensable photographic records. Furthermore, I had already had some experience with these birds, especially during





1. THE STRAWBERRY ISLANDS FROM THE EAST. ISLAND ON LEFT OCCUPIED BY GREAT BLUE HERONS, OTHER TWO ISLANDS BY HERRING GULLS.
2. GRAVEL ISLAND.

July, 1907, when I visited a breeding colony at Gull Island in Lake Superior, near Marquette, Michigan.

On June 20, 1911, I made a preliminary exploring trip in Green Bay starting from my headquarters at Ephraim, Wisconsin. With the aid of a motor boat, the Strawberry Islands, the Sister Islands,

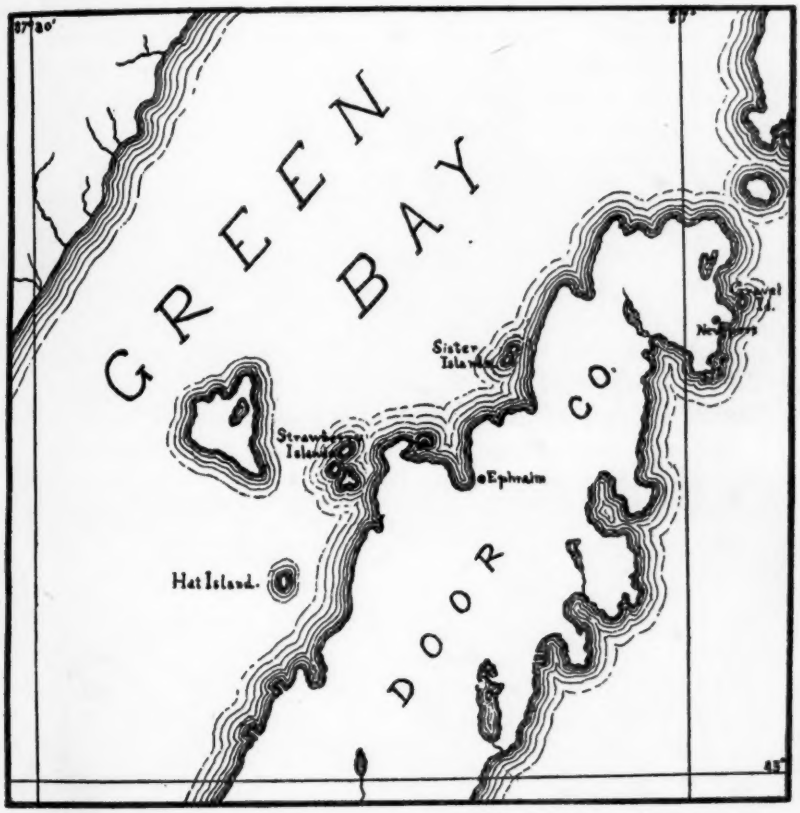


Fig. 1. Map showing locations of Gull colonies in region of GreenBay, Wisconsin.

and Hat Island were all visited during the day, and colonies of Herring Gulls were found breeding on all of these islands except at the largest of the Strawberry Islands (See Plate III, Fig. 1) which supported a colony of Great Blue Herons.

As it did not seem practicable to attempt to live on any of the

islands, I thought it best to stay at Ephraim and depend upon small boats for transportation whenever a visit was made to the gull colonies. Unfortunately, boats were not always available and the weather was not favorable on many days. Work was carried on at the Sister Islands on June 26, July 12, and July 15; at Middle Strawberry Island on June 30 and July 29; and at Gravel Island July 18 and 19. Another period was spent at Middle Strawberry Island beginning at 7:20 P. M., July 7 and ending the next day at 7:05 A. M. So much time was taken by preliminary studies that my experimental work at the breeding places was barely begun when the season ended.

Other experiments were begun with some juvenal gulls which were taken from their nesting places to Ephraim and were kept in a pen (See Plate IV, Fig. 2). These birds were removed to Chicago in August where experiments with them are still in progress. References will be made in this paper to observations made on these captive gulls. The work in Chicago has been made possible through the kindness of Professors Angell and Carr of the Department of Psychology, in giving me outdoor cage accommodations.

The only species of gull discussed in this paper except where otherwise stated, is the Herring Gull.

II. METHODS.

Like other observers, I found a tent or blind indispensable for the study of the birds at their breeding places. On approaching a breeding colony of gulls a wild panic begins which does not cease so long as the intruder appears to be in the immediate vicinity.

I had a tent made similar to that described by Sawyer,[1] with some modifications. It was about four feet high and six feet long at the bottom. The cover was made from dark green cambric lining cloth, costing seven cents a yard. The entire cover could be folded into a package small enough to go into a coat pocket.

After the first trip, extra openings were made to facilitate taking

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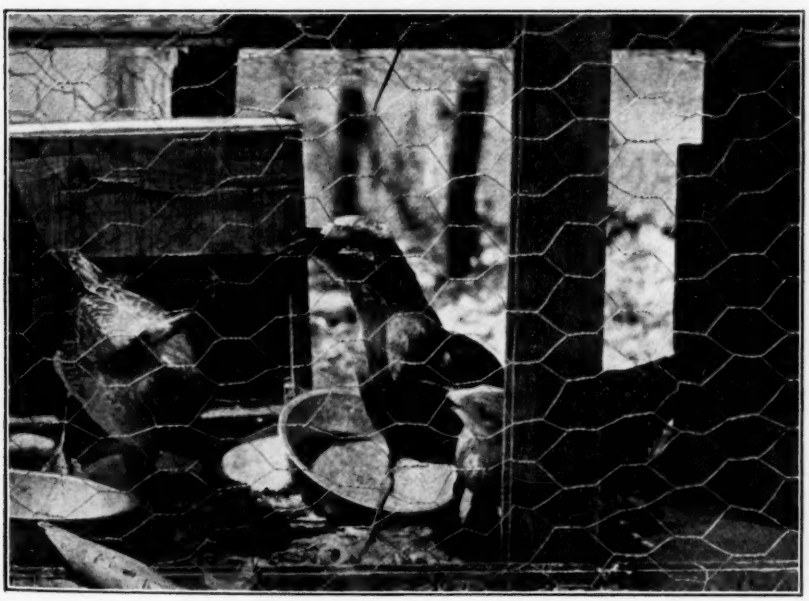
[1] Sawyer, E. J. A Special Bird-Blind. Bird Lore, Vol. XI, no. 2, March–April, 1909, pp. 71–73. One page of text figures.



1. BLIND ERECTED ON MIDDLE STRAWBERRY ISLAND.
2. JUVENAL GULL SWALLOWING FISH ABOUT TEN INCHES LONG.

photographs in various positions. When not in use these apertures were closed by cloth doors which were provided with hooks and eyes such as are used by dressmakers, but of extra large size. An opening about five inches square in the top served quite successfully for ventilation.

Such a tent can be set up on rocky places where stakes cannot be used; and there are no guy lines to obstruct the camera field. It is possible to see more or less of what is going on outside of the tent through the cloth itself, although holes of small size give a clearer view. When dark clothing is worn, one's movements inside are not noticed.

The lower margin of each side and end of the tent was held down by a pole which ran through a hem in the cloth, and the ends of the poles were anchored with weights when a wind was blowing. Thus in Plate IV, Fig. 1, pieces of wood appear at the corners, for this purpose. A brisk breeze was blowing when the picture was taken as may be seen in the bellying of the side of the tent.

This tent with considerable additional anchorage in the form of rocks went through an unusually violent storm without injury or displacement. Only a small portion of the heavy fall of rain came through the cloth. It was found wise to carry permanent tent poles carefully fitted to the corner blocks, in a bundle as a part of my outfit. Drift boards were used as a floor.

The chief objection to this form of tent is that it is not high enough to permit the observer to stand upright. During a long day, I could not avoid becoming much cramped even when I tried shifts from a sitting to a reclining position and so on. I have since used a tent of similar form but larger and over six feet tall. The poles are all of bamboo and the corner fittings are of brass. The number of openings has been reduced but they have been placed in carefully selected positions. The sides and ends are all sewed together except at one corner where the entrance is placed. Tapes are provided for closing the entrance. This tent is much neater and far more comfortable, and it can be set up with the adjustments of equipment in less than fifteen minutes.

I found it necessary, as has been the experience of others, to have a companion leave the tent after having been inside with me. He would also leave the island with our boat, and he would not return

until a time agreed upon for the trip home. During this period I could not emerge myself without spoiling all chances for the day. After the departure of my companion, the apparently normal life of the colony was largely resumed in a few minutes. This precaution was not observed at Gravel Island, and the gulls there did not come very near the tent during the several hours my companion and I spent in the tent. Apprehension was shown in other ways, also. Ward's experience at Gravel Island when he had no one to leave the tent was similar and his account [1] follows. "The next time that I visited the colony, three days later, I was alone. I beached my boat, set up my tent and entered. Six minutes later the first of the young reached the island, followed two minutes later by the settling of the first adults, some on the island at its most distant point, but most in the water. It was an hour and thirty-five minutes before any came close to the tent, and not until half past four the next morning, or thirteen hours after setting up my tent, did the first one alight on it. The gulls on this occasion were quite uneasy and were frequently thrown into a panic by their own actions. The sudden alighting of a bird, or a fight between two, would frighten one, who, not waiting to see what was the trouble, would take wing, followed by one after another as the panic-formed wave swept over the island, leaving it almost bare of gulls. Fortunately they quickly recovered and returned, but their alertness and the frequent '*wak-wak, wak, wak*' of their note of suspicion showed that something bothered them. Apparently the departure of two people and the boat the first visit had deceived them into thinking that all had left the island, while on the second trip, although I had disappeared, yet no one had left the island, and for thirteen hours they remembered this and were suspicious. After the first gull lit on the tent they abandoned their suspicions and were as familiar with it as on the previous day."

A small folding camp chair was found a great convenience, but boxes are often available on a beach and these serve very well as a seat.

Two cameras were used, one a 5 × 7 Graphlex with a Tessar

[1] Ward, H. L. Notes of the Herring Gull and the Caspian Tern. Bull. Wisconsin Nat. Hist. Soc., Vol. IV, No. 4, October, 1906, pp. 113–134, 2 plates.

lens, and the other a folding tripod camera size $3\frac{1}{4} \times 4\frac{1}{4}$ inches with both a lens shutter and a focal-plane curtain shutter. The smaller camera was more often used, and frequently with only one of the two combinations of the convertible lens which it carried. I have found a convertible lens exceedingly useful in bird photography as a long-focus lens is frequently needed. It has been my experience that it is not practicable to use large diaphragm openings in bird photography because of the flatness of the field which they involve when the camera is as near as is necessary for photographing birds. I rarely use an opening larger than U. S. 8 or F. 11.

III. Social or Community Relationships.

An interesting analysis of a Herring Gull community has been made by Herrick.[1] He speaks of "family-units" and "family domains" which he says are guarded "with relentless vigilance." These precincts may be small and close together in a crowded breeding place.

There is also much evidence of coöperation. Thus Herrick mentions the fact that Herring Gulls will "attack a common enemy, such as bird, beast or man, with a certain degree of concerted action."

Herring Gulls are frequently to be seen together in flocks away from a breeding place. Mackay,[2] however, did not regard them as truly gregarious. Thus he says "they apparently only come together when there is some particular reason for doing so, as for instance something to eat, or to roost on some sand shoal or rest, and not apparently because they *like* to be together." Lucas[3] disagreed with this conclusion as follows: "I should have said that gulls scattered in search of food at high water, but came together sociably at other times." My own observations agree with those of Lucas. These birds are usually to be seen in the company of

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[1] Herrick, F. H. 1909. Organization of the Gull Community. Proc. Seventh International Zool. Cong., Boston, 1907, 3 pp.

[2] Mackay, G. H. Habits of the American Herring Gull (Larus argentatus smithsonianus), Auk, Vol. IX, 1892, no. 3, pp. 221–228.

[3] Lucas, F. A. Habits of the Herring Gull. Auk, Vol. IX, no. 4, pp. 388–9.

other individuals, often in vast flocks. It may be questioned whether the gregarious habit implies fondness of the members of a company for each other.

Both juvenal and adult Herring Gulls seem to prefer the company of other individuals of their age. My captive gulls and those I have seen wild are usually to be found in close groups, especially when at rest. However, they are often cruel to each other and like other animals will fight fiercely for food.

A large amount of fighting occurs at a breeding place where no struggle for food is involved. Some of the encounters are undoubtedly the results of intrusions upon a nesting precinct as is Herrick's opinion, and I saw adults resenting attacks upon the young by other adults. Many of the fights, however, seem to indicate simple belligerency. A gull will approach another with head somewhat lowered and bill pointed straight forward or slightly upward. They will then grasp each other by the mandibles and attempt to drag each other about. Blows may be given with the wings and even with the feet. In Plate V, Fig. 1, such an encounter appears. The gull on the right is shown just at the moment when its wings have struck its opponent. The heads of the combatants appear in an oblique position as a consequence of the locking of mandibles. Frequently other gulls will join in the fracas and quite a lively but usually short and harmless tussle follows. I saw one fight broken up by another bird interfering much as a rooster may interfere in an encounter between two other cocks. Often a challenge to fight is not accepted, and the bird approached simply retreats.

Various writers have mentioned the killing of young gulls by adults. According to Ward [1] this may be a very common occurrence. He saw "some dozens" of half grown gulls which appeared to have been killed by adults, and he described the performance in considerable detail. The following is taken from his account which agrees with my own observations. "The main point of attack was the back of the head. To this region a number of severe blows were given with the point of the bill, after which it was grasped

[1] Ward, H. L. Why Do Herring Gulls Kill Their Young. Science, n. s., Vol. XXIV, 1906, No. 619, pp. 593–4.

1. HERRING GULLS FIGHTING.
2. PARENT FEEDING NEWLY HATCHED YOUNG.

between the mandibles of the adult and the bird was pulled about until the skin and flesh were cut through to the skull."

This maltreatment of the young has also been described by Dutcher and Baily [1] and it has been discussed by Herrick. I found that similar treatment was administered to a juvenal gull when it was placed in a cage with two juvenals two to three weeks older. One gull, the youngest of the three in the cage, was particularly persistent and savage in its attacks so that I had to remove the newcomer until its head had healed and it was better able to defend itself.

On erecting my tent at one of the Sister Islands, July 12, 1911, I took a downy juvenal not more than a week old, inside with me. This I released at 12:50 P. M., and it made its way out at once. Its appearance outside caused great excitement. The little gull started west in the direction of the place where I had captured it. On its way it went near a couple of gulls which appeared to belong to a nest I had under observation. These birds started the "challenge cry," and others joined in the same performance. The small gull approached the two adults just mentioned and was pecked on the head after a minute or so. It was next given a number of sharp blows which apparently did no serious damage. The little bird turned at bay and when pecked most severely ran screaming with mouth open, towards its persecutors. This was followed by alternate running and fighting, a procedure which was successful in preventing further serious attacks. The bird eventually found shelter under some drift wood about fifty feet away from my tent.

Herrick explains these attacks upon the young as follows: "This is due to the ferocity of the guarding and fighting instincts in the old birds, and to a lack of attunement in the instincts of the young, in consequence of which a chick will occasionally stray from its own preserve and trespass on the domain of a neighbor." Undoubtedly this covers many and perhaps most cases, but it seems doubtful whether the deaths among the juvenals at Gravel Island

[1] Dutcher, W. and Baily, W. L. A Contribution to the Life History of the Herring Gull (Larus argentatus) in the United States. Auk, Vol. XX, 1903, No. 4, pp. 417–31. Plates XXI–XXII.

can be explained as easily. There both Ward[1] and I found a promiscuous herding of juvenals without regard to precincts at least when the birds were of good size. Furthermore, it does not account for attacks upon juvenals by other juvenals.

During the winter of 1912–3, a wild Herring Gull with a broken wing was left in a basket at my door. It was evidently in the second year and of the same age as the gulls which I brought from Green Bay in 1911. After a few days, noticing that the injured gull carried the wing free from the ground, I placed it with the other two gulls. They at once approached in belligerent attitudes. The newcomer faced them with its head up in dignified defiance, and it was not attacked. Of course I do not know what encounters may have occurred during my absence, but ever since its introduction this bird has been master at feeding time, even with a wry wing. It is not larger, and it recently appeared much smaller as a consequence of poor condition.

A somewhat similar performance occurred when a young crow which had developed enough to fly well, was placed in the gull enclosure. The gulls advanced with threatening actions and even pecked the crow on the head. The latter bird maintained an air of unconcern giving little attention to the gulls who ceased troubling it after a few moments. The crow became at least their equal in bluffing, and I have recently seen it drive all three of the gulls away from the food dish without a battle. The extent to which the gulls submit to the crow, however, seems to vary inversely with their hunger.

Other birds may nest in apparent safety upon an island even fairly densely populated with gulls. Spotted Sandpipers, Bronzed Grackles, Song Sparrows, and other land birds were more or less common nesters on the Strawberry Islands. I found Red-breasted Mergansers nesting on all of the wooded islands occupied by gulls. So far as I could see, no attention was paid to these birds by the gulls. On the other hand, a large bird like the Great Blue Heron seemed to be viewed with disfavor, and I did not find both occupying the same island. On one occasion, I saw a Great Blue Heron pursued and much harassed by gulls.

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[1] Ward, G. L. Notes of the Herring Gull and the Caspian Tern. op. cit.

I have always found Herring Gulls nesting on islands not inhabited by man, but exceptions occur in the literature. A very large colony of gulls studied by Dutcher and Baily was found nesting on Great Duck Island which has a light house.

Though the Herring Gull seems to prefer remote places for nesting, it is a matter of common observation that at other times if unmolested, it does not hesitate to frequent large cities where bodies of water with food occur.

IV. FEEDING HABITS.

The Herring Gull is generally recognized to be almost omnivorous in its feeding habits. It is especially known and prized as a scavenger. I have found that fishermen appreciate its habit of ridding the water of dead fish. It has been my observation that fish, especially when fresh, are preferred by gulls; but when hungry they take almost anything in the animal food line and many forms of plant matter. Dutcher [1] mentions insects including large numbers of ants as eaten by Herring Gulls. Eifrig [2] noted the occurrence of shells, seeds, berries, and a crab in the stomachs of three adult Herring Gulls taken May 29, June 10, and June 15. According to Knight,[3] sea-urchins and star-fishes are eaten. Various molluscs and a crustacean are mentioned by Norton,[4] and Audubon [5] states that eggs are sucked. There is even a record of the capture by a gull of a bat [6] which had been flying about over a river where gulls occurred. Various molluscs are mentioned by Mackay as gull food.

My captive gulls when very hungry will eat bread, but they prefer animal food. Their main article of food is liver with occasional feedings of fish scraps. When live fish are caught, the Herring

[1] Dutcher, W. Report of the Committee on Bird Protection. Auk, Vol. XXI, 1904, No. 1, pp. 164–5.

[2] Eifrig, C. W. S. Notes on Northern Birds. Auk, Vol. XXIII, 1906, No. 3, pp. 313–8.

[3] Knight, O. W. The Birds of Maine. 1908, p. 49.

[4] Norton, A. H. The Food of Several Maine Water-Birds. Auk, 1909, Vol. XXIV, No. 4, p. 438.

[5] Audubon, J. J. Ornithological Biography. Edinburgh, 1835, Vol. III, p. 591.

[6] Rodger, A. M. Herring Gull (Larus argentatus) capturing a Bat. Ann. Scott. Nat. Hist. Soc., 1903, p. 51.

Gull may immerse its head and a large portion of its body, but I have never seen complete immersion. The bird may fly down to the water for food, but it does not dive vertically as terns do. Other writers have made similar observations. The following is taken from Townsend's account of the Herring Gull. "When after small fish or objects below the surface, Herring Gulls throw themselves with some splashing and wings partly spread, head foremost into the water and on rare occasions with such force as to submerge themselves. In these plunges they shoot down obliquely with backs up. . . . I have seen them while riding the water on a rocky shore, occasionally fly up into the air a few feet to get an impetus, and then plunge into the water so that only the tips of the wings and tail were visible, coming up with molluscs and rock-weed in their bills."

Pieces of food not too large are swallowed entire, and the mass may be relatively great (See Plate IV, Fig. 2). Mackay[1] described the great swallowing capacity of the Herring Gull as follows: "I have known both the adults and young birds to swallow a dead pollock head first, the estimated measure of which was ten inches long by two inches in diameter at the thickest part." One bird known as "Gull Dick," and to be mentioned again in this paper would swallow six or eight pieces of pork the size of a hen's egg when hungry, according to Mackay. My captive gulls have swallowed fish of the size mentioned above on a number of occasions. Under ordinary conditions in cool weather, one of my birds will eat four to six ounces of beef liver at a meal when fed once a day, and it will be thoroughly hungry the next day.

According to Townsend,[2] Herring Gulls "eject the harder particles of their food, and balls of crabs, clams and fish bones entirely cleaned of flesh are scattered about their resting places on the beach. These balls are sometimes two inches in diameter; they are loosely compacted and soon fall to pieces. They often contain bits of feathers or down."

An interesting habit of the Herring Gull is described by Town-

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[1] Mackay, G. H. op. cit., pp. 222–3.

[2] Townsend, C. W. The Birds of Essex County, Mass. Memoirs Nuttall Ornithological Club, 1905, No. 3, p. 91.

send [1] as follows: "They may often be seen flying nearly straight up or in circles, with a clam or a crab, which they drop from a height, follow closely the descent, and alight to regale themselves on the exposed contents. If they fail to break the shell the first time, they try again. This habit, which is also a common one with Crows explains the fact that molluscs shells, crabs, and sea urchins are scattered along our coast, sometimes half a mile from the sea." Anthony [2] states that this is a habit of various gull species, and he says "the clam was as often dropped on a soft sand beach as otherwise, and after repeated efforts the gull seemed unable to understand why the shell was not broken. Possibly a few yards distant a rock beach would have furnished all that was necessary to make the effort successful." Audubon [3] also described this method of breaking mollusc shells.

The feeding of the young by the parents will be discussed in the section devoted to the care of the young.

V. BREEDING HABITS.

1. *Mating.*— My field studies with gulls in both 1907 and 1911 were carried on after mating had apparently ceased. Most of the observations described by others do not include mating. At Great Duck Island off the coast of Maine, the breeding gulls are stated by a resident [4] to arrive each year in March. They are said not to be mated when they arrive. After mating is completed, nest building begins. This is about the middle of May or later. A short but interesting account of the mating behavior is given by Audubon.[5]

A peculiar performance has been observed by Ward [6] which he compares to the dance of the albatross described by Fisher, but its relation to mating is uncertain. Copulation also has been described by Ward.

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[1] Townsend, C. W. op. cit., p. 96.
[2] Anthony, A. W. Random Notes on Pacific Gulls. Auk, 1906, Vol. XXIII, No. 2, pp. 129–7.
[3] Audubon, J. J. Ornithological Biography. Edinburgh, 1835, Vol. III, p. 592.
[4] Dutcher and Baily, op. cit., p. 431.
[5] Audubon, J. J. Ornithological Biography. Edinburgh, 1835, Vol. III, p. 590.
[6] Ward, H. L. Notes of the Herring Gull and the Caspian Tern. Bull. Wisc. Nat. Hist. Soc.

2. *Nest Construction.*— I have seen no nest building operations by gulls, and I had no evidence of any nest building being attempted during my visits to the colonies. However, I found nests in early July which seemed to have been constructed very recently. Herrick [1] speaks of "brand new nests" made in late July never to be occupied. The nests, as has been stated by others, are usually fairly bulky and of varying materials. Apparently grass, fine weed-stems, and feathers are preferred as these occurred in the majority of nests. Sometimes, however, nests were made largely of strips of bark or of coarse weed stems. Other beach debris may be used, especially the finer or softer materials. Bits of bark and other coarse materials appear in the nest which is shown in Plate VI.

The nests are mostly saucer shaped (see Plate VII, Fig. 1). They have been described in detail by Ward[2] who also gives measurements. Dutcher and Baily also give measurements in their article.

Although Ward's studies were made as late as the first week in July, he [3] observed that "Incipient nest building was going on continuously." However, he saw no nest making that seemed likely to be carried to completion. Herrick [4] made similar observations.

A description of actual nest building is given by Ward in the case of the so-called incipient nest building which he observed.

As has already been stated in the introduction to this paper, a great variety of locations may be chosen for the nest. In general, it seems that uninhabited islands are preferred, where the nest may be anywhere on the beach or back some rods from the open beach in bushes, among tall herbaceous plants, or in grass, or upon rock ledges. Often the shelter of a drift log is chosen (See Plate VII, Fig. 2). Nests may be placed in trees under certain circumstances, a point that will be discussed elsewhere in this paper.

Much of the grass used in the nests is growing when pulled up by the birds, according to Dutcher and Baily. They have also described one nest as composed entirely of fresh green material.

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[1] Herrick, F. H. The Home Life of Wild Birds, p. 163.
[2] Ward, H. L. Notes of the Herring Gull and the Caspian Tern. p. 116.
[3] op. cit., p. 131.
[4] Herrick, H. F. Home Life of Wild Birds.

HERRING GULL WITH NEWLY HATCHED YOUNG AT NEST ABOUT SIX FEET FROM BLIND. NOTE THE COARSE NEST MATERIALS.

They observed much repairing of the nest with green grass or weeds during incubation.

There is a description [1] of a nest placed 60 feet above the ground and composed of "long, firm, flexible grasses, evidently gathered when green from the salt marshes, and carefully woven into a circular fabric." It is stated that this nest could be handled without coming to pieces.

Herrick [2] also speaks of the habit of pulling grass "all summer long," which is sometimes carried to the nest, and he gives an interesting description of a mid-July revival of the nesting instinct.

3. *Brooding.*— According to data given by Dutcher and Baily,[3] which was reported to them by a resident of the island where their work was done, the period of incubation is a little less than four weeks, usually. The following is taken from their account: "The first egg was found May 15, and the first completed set of three eggs on May 22. The last set of eggs hatched August 3–5. Fifteen nests were marked and watched in order to determine the time occupied in incubation, which proved to be as follows: 1 in 24 days; 2 in 25 days; 5 in 26 days; 4 in 27 days; 3 in 28 days."

As the males cannot be distinguished from females by their plumage, ordinarily, it is difficult to get data concerning the relative parts taken by the two parents in brooding. Dutcher and Baily obtained evidence that both parents take part in brooding the eggs. They state [4] that: "On one occasion, while photographing gulls on nests, it was noted that the first bird that occupied the nest, after the camera was focussed, had a number of dark feathers on its breast; after it had left the nest a bird with a pure white breast occupied it. That this was a mated pair there is no reason for doubt, for they were together, and both exhibited the greatest solicitude for the nest and its contents." They also observed that the stage of incubation could be determined by the increasing anxiety of the parents as the end of the period drew near. On the same page the following occurs: "During the last few hours before the pipping or

[1] Baird, Brewer, and Ridgway, Vol. II. The Water Birds of North America. p. 239.
[2] Herrick, F. H. Home Life of Wild Birds, p. 163.
[3] op cit., p. 431.
[4] op. cit., p. 426.

cracking of the egg the parent birds were so fearless that they would leave the nest only on a near approach, and while the camera was being focussed would remain within a few yards, perched either on the ground or on a low tree or stump." This change in behavior towards the end of the incubation period is of course not peculiar to gulls.

Some observations were made by Dutcher and Baily [1] on the turning of the eggs by the brooding bird. They found that the eggs are sometimes turned slightly with the bill when the bird goes on the nest, though in one case where each egg had been marked with an arrow, only one was found turned after the bird went on the nest. I also obtained some evidence of the eggs being turned by the bird. In some cases, as the parent nestled down over the eggs it appeared probable that at least a slight turning of eggs would occur. There was usually more or less shifting of the feet, body and plumage, as the bird adjusted itself to the eggs and nest. This performance has been described in detail by Dutcher and Baily.[2]

On very warm days, especially at midday, I found that the nest is left frequently for a few moments. At such times the bird goes to the water's edge and takes at least a partial bath. There is much splashing of water with the bill and sometimes with the whole head. There is some drinking of water also at this time.

Another phase of the brooding activities is the repelling of intruders from the vicinity of the nest. According to Herrick,[3] one of the parents is on guard most of the time after the eggs hatch, for several weeks. He says also that the guarding bird stands on a perch which is maintained by habit. Dutcher and Baily also mention this guarding habit, and I have also noticed it. According to Hornaday,[4] a pair of Herring Gulls bred successfully in Bronx Park Zoölogical Gardens. He states that the male "bluffed or fought everything coming within ten feet of the nest." During a battle, the sitting female would point her bill toward the sky and scream.

So far as I could determine, there is more or less brooding of the

[1] op. cit., p. 427.
[2] op. cit., p. 427.
[3] Herrick, F. H. Proc. Seventh Internat. Zool. Cong.
[4] Hornaday, W. T. The American Natural History, p. 297.

1. CHARACTERISTIC GULL NEST ON ROCK LEDGE AT GULL ISLAND NEAR MARQUETTE, MICH., IN LAKE SUPERIOR.
2. HERRING GULL ON NEST.

young for several hours after hatching or until they are able to run about. Often on a hot day, one of the parents would simply stand over the newly hatched nestlings shading them from the sun. Plate X, Fig. 1. The other parent was usually near by and it would change places with its mate at intervals.

I doubt whether there is much covering of the young for more than a day or two after hatching, in pleasant weather. No observations were made in bad weather of the treatment of very young birds.

The eggs (see Plate VII, Fig. 1) have been fully described by many writers, especially in general works on birds. Detailed descriptions are given by Dutcher and Baily of some of the very numerous and great variations. Good descriptions occur in Ward's paper.

4. *Care of young.*— Concerning the care of the young by their parents, much remains to be learned. The brooding and shading of the newly hatched young has just been described. I obtained considerable evidence that both birds participate in feeding the young. According to Herrick,[1] the young gull receives its first food in about one hour after hatching, at the nest.

The larger juvenals tease vigorously for food when hungry and the whole feeding performance for a young gull more than a few days old has been well described by Ward[2]: "The young comes in front of an adult and with a bowing and courtesying movement put up its bill to that of the old one, continuing the bowing for several minutes, resting between times. Sometimes it took hold of the adult's bill with its own, at other times merely touched bills. When the adult opened its mouth the young put its bill within. Failing to get indications of food, it went to another adult, and repeated the operation, passing in succession to several, until at length it seemed to get some favorable signs, for it remained by this one, alternately begging and resting. After some time it was apparent to me that the adult was striving to regurgitate. It would open its mouth, stretch its neck nearly horizontally, then bring its head down to the ground. After a moment it will close its bill, turn its head to one side and look at the ground over which it had

[1] Internat. Zool. Congress Report. op. cit.
[2] op. cit., p. 121.

been straining, as though expecting to find something there. Other gulls were from time to time attracted to the scene, but were promptly chased away by this bird, who ran rapidly at them with open beak and outspread wings. Perhaps half an hour after these efforts began I saw a portion of a fish appear in its mouth, and a moment later it was deposited on the ground, when the young promptly seized it. The fish appeared to be a herring about 7 or 8 inches long and so mascerated that it readily fell apart. The adult assisted in breaking it up, and I saw it pick out the vertebral column, which it dropped with the other pieces."

"The young fed mostly from the ground, but occasionally snatched a piece from the bill of the adult.... After some minutes I noticed that regurgitation was apparently to be repeated, and in about a quarter of an hour the remains of another fish were deposited on the ground and disposed of in the same manner."

The newly hatched young, according to my observations are more passive, and I obtained some evidence that the parent may initiate the feeding performance. Similar conditions occur in the feeding of young pigeons. On June 30, 1911, while taking observations on one of the Strawberry Islands, a pair of gulls whose nest was about five feet from the base of my tent fed two young not many hours old and still too weak to walk well, at irregular intervals within eight to ten feet from my point of observation. The little gulls had been coaxed away from their nest for a few feet by their parents, a distance which they covered with difficulty.

The following notes concerning the observations just mentioned have been taken from my note book. The bird shading its young was relieved at 12:40 P. M., and went down to the water for a drink. The other parent at once proceeded to feed the young gulls while the first bird stood a few feet away at the edge of the water. The adult bird did not insert its bill in the mouth of its offspring but the latter took food from the ground just below the bill of the parent. Occasionally the young reached up towards the bill of the parent which was held low, often almost at the ground (see Plate V, Fig. 2). A quantity of food in a fine and soft condition was disgorged in more or less of a heap. After the young had eaten, the parent swallowed what was left. These very young birds ate slowly, apparently without much appetite. The whole performance passed off quietly and with no rapid movements.

At 1:45 P. M., I saw the same young birds being fed again. A little later, I noticed another feeding of some gulls a few days older. Small fishes appeared in the food disgorged by the parent.

In spite of the fact that the gulls seemed to settle down to normal activities during my tent work, I saw surprisingly few cases, relatively, of feeding the young. These were usually a little too far away to permit close observation, and it was seldom possible to determine by observation from my tent what the nature of the food was.

The stomachs of six young Herring Gulls "of different sizes" as reported by Norton,[1] "contained almost no fish but all contained ants in varying quantities, only one being full."

Where many young gulls occur in a relatively small area, it is difficult to determine whether the adult birds always feed only their own young. The small amount of evidence I obtained suggested that the parents, usually, feed their own offspring. But it is of course possible that birds usually feeding their own offspring, may occasionally give food to other juvenals.

At Gravel Island there was apparently considerable promiscuous feeding according to the observations of both Ward and myself.

I observed adult gulls alighting near close flocks of young birds on a number of occasions, at Gravel Island. Each time the juvenals surrounded the adult like a pack of wolves, and it was often completely hidden from my view by the struggling young gulls. In Plate IX such a scene appears. Such a performance was usually accompanied by considerable noise made by the hungry birds. Other adult birds sometimes added to the clamor by screaming. The general excitement is shown in the illustration just mentioned.

The period during which the young are fed is evidently a long one. I saw young birds which must have been at least six weeks old, and probably considerably older than this, still being fed by adult birds. It is of course possible that young birds may be obtaining some of their food themselves before all food giving by their parents or by other adults ceases.

On a few occasions, I saw adults apparently resenting the ap-

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[1] Dutcher, W. Report of Committee on Bird Protection. Auk, 1904, Vol. XXI, No. 1, p. 164.

proach of other adults to their young, but data of this sort are very meagre. These observations and those quoted in this paper from Herrick and Hornaday, however, make it probable that the young are guarded for at least a considerable time after hatching by their parents.

I have been unable to obtain data concerning the relationships of the parents to the young when the latter are learning to take care of and feed themselves. Adults and young roam about together in flocks for weeks or months after the young are able to fly.

5. *General Behavior of the juvenal gulls.*— The behavior of the young just after hatching has been described by Ward.[1]

According to Dutcher and Baily [2] "The instinct to hide seems to be developed within an hour or two after hatching, or so soon as the young bird is strong enough to walk." My own experience is that the instinct to hide is not always developed thus early. On July 6, 1907, at Gull Island near Marquette, Michigan, in Lake Superior, I found a nest containing one single nestling which stood up pertly in its nest and did not give the usual indications of fear (see Plate VIII, Fig. 1). The plumage of this bird was dry, and it was able to stand. On the same day, another nest was observed with two young and an egg in which the occupant was breaking its way out (see Plate VIII, Fig. 2). In this case the two nestlings showed very great fear and left their nest which was located on a small ledge of rock, squealing pitifully. They showed other signs of distress and began to pant. Mrs. Strong held an umbrella over the birds to protect them from the intense sunlight that prevailed. Nevertheless, before I had gone through the process of mounting a camera on a tripod and making one exposure, one of these birds died. Presumably the combination of fear and heat was responsible. The dying bird appears in the picture.

I agree with Dutcher and Baily that young gulls show the hiding instinct as soon as they are able to run about freely. During the pandemonium that prevails among the adults when one approaches the nesting place of a colony of gulls, the larger young not yet able to fly may be observed with the aid of strong glasses running about

[1] op cit., p. 120.
[2] op cit., p. 422.

1. NEWLY-HATCHED YOUNG SHOWING NO FEAR.
2. NEWLY-HATCHED YOUNG IN A PANIC OF FEAR

to places for hiding. On reaching shore all young birds able to leave their nests will be found hiding except those that have taken to the water. Those able to fly are pretty sure to join the adults in flying overhead, or they often alight on the water at some distance. This hiding instinct has been described in some detail by Dutcher and Baily.

At Gull Island in Lake Superior, I frequently saw half grown gulls running headlong over the rocky surface of the island after being removed from their hiding places. They would often fall ten or more feet over ledges to rocks below without any apparent injury or significant delay in their rush for the water.

According to my observations the young gull, when attempting to hide, especially if still in the down plumage, will remain perfectly quiet until it is handled or removed from its hiding place. After being disturbed in this way, however, the hiding instinct seems to be replaced by an impulse to flee and the bird, if not checked, will run in headlong fashion until it reaches water or gains a position where it is really out of sight, a number of rods away. Usually when such a bird reaches the water it will swim some distance from shore. I have observed the same behavior in the young of the Wilson's and Roseate Terns, *Sterna hirundo*, and *S. dougalli*. The Laughing Gull, *Larus atricilla*, apparently shows the same behavior, but I have not studied the habits of this species enough to make a complete comparison. Probably this hiding behavior is common to most species of the whole order, under similar circumstances.

In the case of the gulls hatched in tree nests, the behavior must of course be different. It is hardly conceivable that the young in tree nests as high as fifty feet above the ground, as some have been stated to be, can leave their nests before the flight feathers are well developed. Concerning this point we find Dutcher and Baily[1] saying: "The young in tree nests also seem to have sense enough not to walk off the edge of the nest, for in 1902 Mr. Baily found young at least ten days old in a tree nest."

As viewed from my tent, the young gulls appeared to spend most of their time standing idly about waiting for food. The

[1] op. cit., p. 422.

recently hatched birds were observed enjoying the shade of one of their parents when the sun was intense as has already been stated in this paper. They also used drift wood or anything else offering shade. The more developed juvenals, especially on warm days, did a large amount of bathing at the water's edge. Still older young would swim further out from shore in bathing. When the definitive feathers are developing and begin to burst from their sheaths, much time is spent in dressing the plumage with the beak. Whether the opening of the feathers is facilitated by the feather manipulation could not be determined.

6. *Development of bird after hatching.*— A detailed account of the hatching and early development of the young after hatching has been given by Dutcher and Baily.[1]

Growth is rapid but the young are in the down plumage for a number of days after hatching. It is not in the province of this paper to give a detailed description of the plumage, and the reader is referred to the account given by Dutcher and Baily[2] (p. 422 with Plate XXII). The sequence of plumages has been described by Dwight.[3] The dark plumage of the juvenal gull is replaced after the first winter by a lighter and less mottled plumage with quite a bit of individual variation in the rate of change, judging from my captive gulls. At two years, my gulls had lost most of their juvenal coloration. Strange to say the wild gull obtained in the winter of what must have been its second year, was somewhat behind the others when they were two years old. None of my gulls had acquired at two years as advanced a plumage as that described by Dwight for Herring Gulls of that age. Sharpe[4] describes progressive changes extending through the first five autumns, and he says that the "quills" have more dark coloring at the fifth autumn than appears in older birds. The following quotation from Townsend's account of the Herring Gull agrees well with my observations. "It is superficially evident from the large number of dark and mottled birds at all seasons, that it takes several years

[1] op. cit., pp. 421–2.
[2] op. cit., p. 422.
[3] Dwight, J. The Sequence of Plumages of the Laridae (Gulls and Terns). Auk, 1901, Vol. XVIII, No. 1, pp. 49–63.
[4] Sharpe, R. B. Catalogue of Birds in the British Museum. Vol. XXV, 1896, p. 264.

to attain the beautiful adult plumage. What appears to be a dark tip to the tail, so prominent in young birds of a certain age, is often retained after increasing whiteness has set the stamp of years, but it is entirely absent in the snowy white tail of the fully matured bird. Birds with pure white tails with the exception of a slight central sprinkling of dusky brown and with a few faint gray streaks in the upper breast, are not uncommon."

My gulls acquired a yellow iris in the second winter, but they still in their third fall have the bill colored as in the first year. According to Astley,[1] the bill does not become yellow until the fourth year, although a nearly complete adult plumage appears at the third autumnal molt. Sharpe's account indicates that the adult coloration of the beak is not acquired until after the fourth autumn.

Very meagre data are available as to when breeding begins. A case is described by Dutcher[2] of a gull which apparently began breeding when two years old, and I quote the evidence given for this conclusion as follows. "In response to the question whether the dark colored birds ever mated with the white birds, Mrs. Stanley said that they did when they were two years old. Her reason for this belief was as follows: On one occasion a young gull had lost one of its legs just above the knee. The wound healed but the bird was a cripple and had to hop and stand on the perfect leg. They fed the bird, and it became very tame. In the fall it left with the other gulls and returned with them the next spring, exhibiting its old familiarity. That season when the bird was only one year old it did not mate. It remained on and about the island all the season, departing with the others on their southward migration. The following season it returned again and was still partially dark colored. It secured a white mate and raised a brood of young."

It is my judgment that Herring gulls rarely breed this early. I saw a few with a very small amount of the immature coloration in their plumage, which were certainly at least two years old. I obtained no evidence that these birds were breeding except the fact of their occurrence with breeding birds at a breeding place.

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[1] Astley, H. D. My birds in Freedom and Captivity, p. 160. E. P. Dutton and Co., London, New York, J. M. Dent and Co.

[2] Dutcher, W. Results of Special Protection to Gulls and Terns Obtained through the Thayer Fund. Auk, Vol. XVIII, 1901, No. 1, p. 98.

All of the birds that I actually saw with eggs or young were adult, as far as I could see.

I have seen relatively few immature gulls during the spring and summer after their first winter, but this is probably due to their scattered distribution. Many individuals linger some distance south of the breeding range of the species. Thus Townsend speaks of immature gulls being abundant at all seasons off the coast of Essex County, Massachusetts, though Herring Gulls do not now breed south of Maine on the New England coast. Immature gulls are also seen over the south portion of Lake Michigan during the breeding season though the nearest breeding place is many miles to the north.

Concerning the longevity of the Herring Gull, I have found two records which indicate that the period of life may be considerable though giving no idea how long it may be. Thus Morris [1] mentions a Herring Gull which was being fed daily and was very tame. This bird is stated to have escaped thirty years before "from a garden where he had been a prisoner." Another bird known as "Gull Dick" is well known to ornithologists through the reports made by Mackay to 'The Auk.' He says that this bird [2] had "the habit of frequenting, and returning year after year to the waters adjacent to Brenton's Reef, Narragansett Bay, and was known in consequence to the crew of the lightship anchored in that locality ....In 1891 the bird arrived October 12 which makes the twentieth winter it is known to have passed in this locality. This bird was identified each year partly by its tameness, and "also by certain marks on its wings, also by its cry." It was reported by Mackay during the following four years after which it failed to appear.

VI. VOICE.

1. *Introductory.*— During the summer of 1911, especially, I gave a large amount of attention to the sounds made by the gulls with the hope of making interpretations concerning their significance. Attempts to describe the various vocal performances were

[1] Morris, F. O. A History of British Birds. Vol. VI, p. 159.
[2] op. cit., pp. 226–8.

made whenever possible, with difficulties which will be appreciated by all observers who have tried to make descriptions of animal sounds.

Though I tried to notice anything that might have any bearing on the significance of the sounds made by the gulls, I had the following points especially in view: (1) the circumstances under which each sound was made, (2) any possible evidence of associated emotions, (3) the attention given by other individuals and especially by the young to these sounds. As all of the cries occupy only a few seconds at the most, it is necessary when in the field to be ready to give instant attention the instant the sound is heard. Here again we see the advantage of the presence of a considerable number of individuals at such close range as they can be at a breeding place. Some notes are not made frequently by a single individual, and the chances of hearing them are multiplied many times when the observer is in the midst of a fairly large breeding colony. On the other hand, of course, a large number of gulls in a limited area make a bedlam of noise which is often confusing. With careful concentration on single sounds or performances it is possible to reduce the confusion of sound to a working basis.

2. *The alarm cry.*— In my experience, whenever wild gulls are disturbed at their breeding places, at least by man, they become very noisy. Though other sounds are made, the characteristic and usual cry is what has been called by Herrick,[1] Ward and others the "alarm cry." This consists of sharp and short notes in doublets or triplets which are produced with great variations in quality and in pitch. I was unable to determine whether these variations are produced by different individuals. They are striking and always to be noted when a colony of breeding gulls is disturbed.

After trying various syllables to represent these sounds, I finally decided that the following is as satisfactory as anything I could devise, kek'-kek-kek, with an accent on the first syllable, the *e* being sounded as in deck. Often only two instead of three of these sounds are made in a group. These triplets or doublets are uttered in rapid succession as the bird flies about in the general panic.

Mackay[2] described the alarm cry with the syllables "cack,

[1] Herrick, F. H. The Home Life of Wild Birds.
[2] op. cit., p. 226.

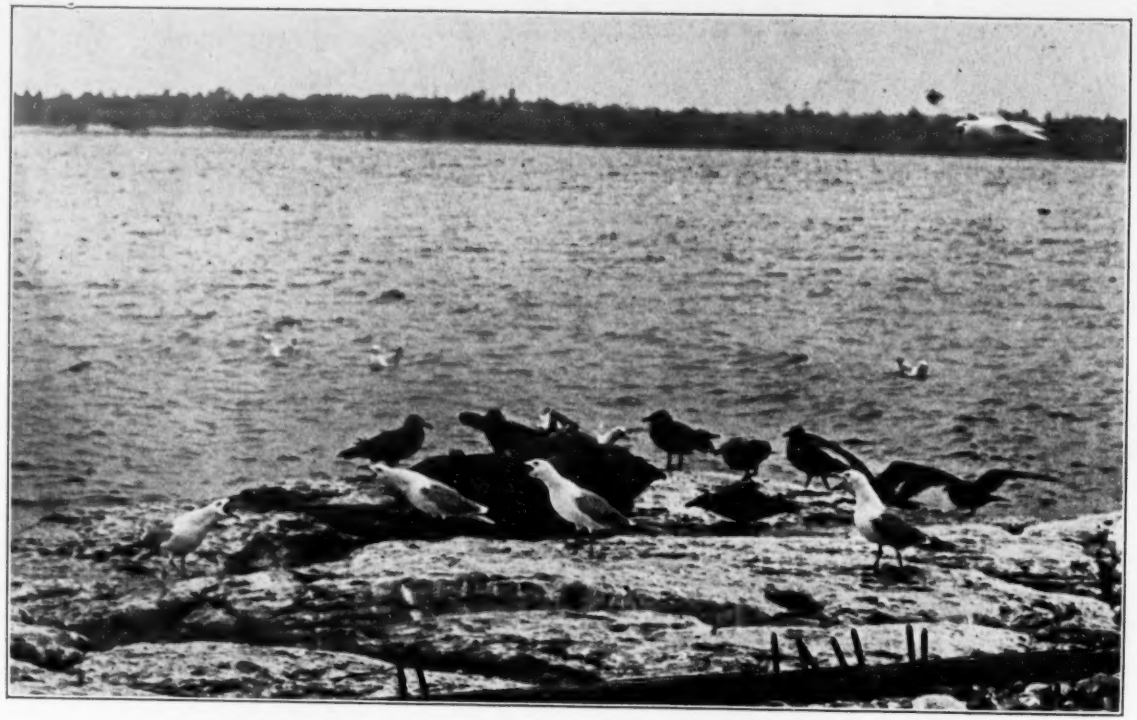
cack, cack," and Herrick[1] used the following: "waw-wak-wak! wak-wak! wak-wak!" Ward used the same symbols in his paper. Another rendering was made by Knight[2] as follows: "ha-ha-ha" or another alarm cry as follows: "qu-e-e-e-a-h que-e-e-e-a-h." He noted that these cries vary in the "intensity of their demonstration" depending on the contents of the nest (whether fresh eggs, incubated eggs or young are present) the amount of previous disturbance they have been subjected to, etc.

The alarm cry may be high and shrill or rather low with "chest tone" quality. Intermediate variations also occur. As the disturbance in a gull colony subsides, these notes are uttered less and less frequently, and the lower notes predominate more as the excitement decreases. The cries also become less loud and incisive, until as Herrick[3] has expressed it: "Finally ceasing like a clock running down, the mandibles continue to work with no sound for a moment or so."

I have often heard these sounds made when the birds were apparently simply solicitous or slightly anxious concerning their eggs or young. Thus hours after the gulls had settled down to apparently normal activities about my tent, single birds would occasionally fly overhead making the alarm cry. At such times the cry is characteristically low and not at all shrill.

3. *The "challenge."*— This was for me the most interesting vocal performance, though it is less often mentioned by other writers. Herrick describes a "scream of defiance" and has a photo showing a bird making this noise. Ward is the only writer to my knowledge who has described this performance in any detail, and his interesting account follows.[4] "Frequently, the general clamor would be dominated by a peculiar cry which I put into words as '*yeh, yeh, yeh,*' rapidly repeated and increasing in vehemence to the utmost capabilities of the gull, when it quickly ceased. Usually, a few seconds after one began another joined, until often there were a half dozen birds screeching at once, and occasionally, this number would be increased to a score or more.... The bird stretches its

[1] op. cit., p. 55.
[2] Knight, O. W., op. cit., p. 48.
[3] op. cit., p. 55.
[4] op. cit., p. 130.



GULL SCENE AT GRAVEL ISLAND. THE DARK BIRDS ARE IN JUVENAL PLUMAGE. AN ADULT WITH FOOD IS HIDDEN BY THE JUVENALS. THE OTHER ADULTS ARE MAKING THE "CHALLENGE CRY."

neck downward, opens its bill widely and begins the call, then with a jerky sort of start it stiffly raises its outstretched neck, usually to an angle of about forty-five degrees. Generally, almost invariably, the head, neck, body and tail are all held in practically the same line and in a remarkably stiff manner. The whole performance is so machine like in its rigidity and precision of motion that the gulls appear like a lot of automatons." I have adopted Ward's term "the challenge" for this cry.

I made a number of records of the performance, and I add a few details to Ward's description. Just before the head is raised a single note which may be of appreciable duration is often made. This I tried to represent in my notes by the syllable "*kēēē*." It is followed by a series of high and shrill notes as described by Ward. I finally settled on the following representation in my notes: " kēēē, kēē′ ek, kēē′ ek, kēē′ ek, kēē′ ek, kēē′ ek, etc." The e in kee is sounded as in see and this syllable is accented. The first note is longer. Although this noise seemed to take more time, I found on using a watch that it occupies only a few seconds. The performance, may, however, be repeated more than once during the course of a few minutes, when other gulls are "challenging."

In my experience the "challenge" call is usually made by a bird on or about the ground, but I have often heard swimming or flying birds make this noise. All of these situations are shown in Plate IX where a number of birds are seen in the performance. The three birds on land at the left and in front, give the best idea of the usual position.

Good pictures of gulls indulging in the "challenge" appear in both Herrick's and Ward's accounts of the habits of these birds.

Concerning the significance of the "challenge" performance, little more than opinions can be offered. It may sometimes be made when other individuals are frantically indulging in the "alarm cry." I have noted individuals going through this performance while flying about in the general panic which took place when I was landing at an island where gulls were breeding. This behavior often seems to indicate a belligerent attitude and it then well deserves the term "defiance cry" or "challenge." My observations lead me to agree with Ward in saying "Anything that startles the gull without producing a panic, or the proximity of

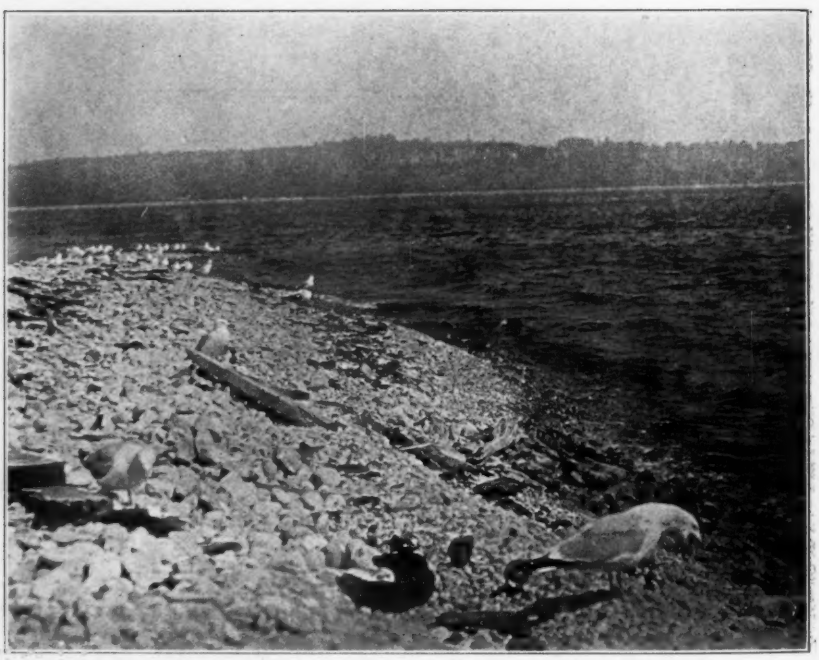
fighting birds, or even at times the approach of other gulls seems to be sufficient cause for its production."

My captive gulls have indulged in a performance which I have observed on a few occasions. This has appeared to be a developing challenge. The first efforts were made in their first autumn. The same positions were taken, and the sounds made were as similar as the first crowing efforts of a young rooster are to the crow of a mature cock. The last attempt was observed in the early summer of 1913. As my birds have attempted the challenge only on rare occasions, I have not been able to study its characteristics satisfactorily. Each time the performance was begun without warning, and it was over in a few seconds. On each occasion a contest over food was in progress, although the bird making the noise was not always engaged in the struggle. Contests over food are exceedingly frequent, however, and the only sounds made, with these rare exceptions, consist of a shrill squealing chatter.

Adult birds in late summer after the breeding season is over make a cry which is at least similar if not identical with the "challenge," but I have not observed it at close range.

4. *Other cries.*— Though the "alarm" and "challenge" cries make up a large portion of the general clamor at a breeding place, especially when the birds are disturbed or excited, other sounds are also made. Of these a cry remarkably like the mewing of a cat is one of the most frequent. The birds I saw "mewing" held the neck arched and the head pointed downward. This performance often occurred when adults approached young birds apparently their offspring. It also seemed at times to be made in calling the young. The adult gull at the extreme right in Plate X, Fig. 2 is seen "mewing." This bird was engaged in coaxing its newly hatched young to a place not so near the tent, and they were too weak to do more than stumble along over the pebbly beach. The whole procedure was rather deliberate and more or less interrupted. Now and then the adult would make the mewing sound, and on one of these occasions I obtained the photograph just mentioned. Ward [1] observed another set of conditions under which the mewing cry may occur as follows: "The first day that I was in the tent,

[1] op. cit., p. 129.



1. PARENT GULL SHADING NEWLY-HATCHED YOUNG.
2. GULL AT RIGHT MAKING THE "MEW" CRY, VERY YOUNG OFFSPRING WALKING JUST BEHIND. OTHER GULLS SEEN IN CHARACTERISTIC LOAFING POSITIONS.

at 3 P. M. a rain squall came up. Dark clouds obscured the sun, occasional flashings of lightning were seen and peals of thunder sounded from time to time. The wind came in cold sharp gusts. The shrill cries of the gulls were quickly subdued and a plaintive mewing was the all-prevailing sound."

On a few occasions, I heard a shrill and prolonged cry which was distinguishable from the mew and yet apparently related to it in its characteristics. This I have represented in my notes by the syllable "kerr" with the *e* sounded as in her. It suggested to me a noise often made by a contented hen in the chicken yard. I was unable to get any clue to its significance.

A high-pitched kēē sound is often made when the bird is flying. I have heard this given by gulls away from their breeding place. It is of appreciable duration, and it descends slightly in pitch.

Another performance which I noted only a few times involved a rapid series of weak notes not unlike the peeps of a newly hatched gull but with more of a whispering quality. This I represented as follows: "peep-peep-peep-peep-peep, etc." The beak was opened only slightly and shut with each note. It is possible that this is the "run down" alarm cry which Herrick mentions, but its occurrence was not connected with any apparent alarm nor was it closely preceded by alarm cries. The bird stood about in the position shown in Plate X, Fig. 1 and was very near my tent. The noise would not have been heard if the gull had been many feet away. Perhaps a fair guess would be to suggest that we had here an incipient alarm cry which did not involve a stimulus strong enough to produce the full response.

Young Herring Gulls give a cry for food which varies with age. The newly hatched birds utter only weak peeps. As they grow older, these develop into more insistent squealing notes which may be made with a bowing motion for each. When attacked or in distress, juvenal gulls often make a sharp and still more incisive squeal in which the notes are uttered more rapidly and more loudly. I have already mentioned the attempts at a challenge cry which are made by juvenals.

(*To be concluded.*)

NOTES ON NEST LIFE OF THE BROWN CREEPER IN MASSACHUSETTS.[1]

BY WINSOR M. TYLER.

IN the midst of an extensive wood in the Town of Lexington, Mass., over an area of ten or fifteen acres the land lies in long, more or less parallel, ridges with hollows between, like great solidified sea-waves,— the eskers of the geologists. From crest to crest is a distance of fifty yards or more. The ridges are covered with well grown white pine and an occasional hemlock. The damper hollows are filled with a luxuriant growth of cinnamon fern, shaded by white and black oak, and red maple. Nearby, to the south, and within two hundred yards toward the west are two swamps, one marshy, the other wooded. For the past five or six years, this region has been infested with brown-tail and gypsy moths, and the life of the trees, especially of those growing on the drier ridges, has been threatened. Indeed, at a point where two ridges join, the moth invasion became so serious that, in despair of saving the trees, many of them were cut down over the space of six or seven acres. Many more trees, killed either by the moths or by a forest fire which ran through the locality year before last, remain standing in the clearing, their bark entirely torn off by the wind or gradually falling away in flakes.

In this clearing, I heard a Brown Creeper (*Certhia familiaris americana*) singing on May 5, 1913. Ten days later, early in the morning, I found two Creepers in the clearing. One soon disappeared; the other flew back and forth between the burned trees and a growth of sprout oaks a hundred yards to the north. On each return to the clearing, she carried in her bill some dry grass which she took to her nest behind a piece of loose bark, standing off from the trunk of one of the burned oak trees.

The following notes record the history of this pair of Brown Creepers and the partial history of a second pair which bred eight miles away in Concord, Mass. The record has been made up from

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[1] Read at a meeting of the Nuttall Ornithological Club, November 3, 1913.

my notes which I wrote largely with the birds before me. I have used quotation marks to indicate direct transcription from these field records.

The nest tree is a dead black oak, the trunk of which three feet above the ground measures 33 inches in circumference. Little of the bark has fallen except from the upper half of the tree where it is nearly bare. Eight feet from the base, a slab of bark as broad as the span of one's hand stands off from the trunk; it is continuous above with the unseparated bark of the tree; its free lower border is six inches from the trunk; on each side is a bare area. The cavity behind the bark is nearly filled by the nest,— a mass of sticks, bits of bark and dead wood, caterpillar webbing, dry grass, cocoons and the down of cinnamon ferns,— materials all to be found in the immediate neighborhood. The nest measures seven inches in height. Its base, made chiefly of sticks, projects slightly below the flake of bark. The nest is attached to the inner side of the bark and not to the trunk; when the flake is raised, the entire nest swings out with it. The nest is lined with fern down; the hollow is oval with the long axis parallel to the surface of the trunk; it is built up at the two sides, giving a hammock effect.

"May 17. At the Creeper ground, 7–8 A. M. By standing on a stump, I can look into the nest. It is empty, although practically completed. When the bird comes to the nest, she enters facing the trunk and comes out with her back to it. This is repeated at the next trip. She gives the long, vibrating, sibilant "*Ziiiit*" call and the short "*ts*" almost continually. Today she collects material from near the nest — from within twenty-five yards. She is always in sight except when she is behind a tree or branch. She adds to the nest what appears to be a bit of bark. She is away for two minutes,— the next time for one minute — again for one minute. When ascending a smooth, barkless trunk she spreads her feet far apart (as a squirrel would). She finds nesting material here,— fine filaments which she peels off. She generally alights below the nest and creeps up to it; sometimes she alights above and hitches downward, moving backward and sideways. She goes now to the ground for dry grass. She hops about for a distance of ten feet, gathering blades eight inches long. She creeps easily over rocks, even over an almost upright face. The

darker male brings dry grass to the nest and goes behind the bark, but he does not add the material to the nest; he waits about. The female returns, adds to the nest the grass she has brought, then takes the grass from the male. Now she is collecting shreds from the inner bark of a dead oak tree, sometimes in her search crawling under projecting strips of bark. She often tries to break off tiny twigs by grasping them in her bill and shaking them,— once she hovers in the air in the attempt."

"May 19, 8:30 A. M. Neither bird seen about the nest. The cup is deep and I see no eggs. I do not dare to feel in the nest for fear of dislodging it."

"May 20, 3 P. M. One egg in the nest. In the semi-darkness behind the bark the shell appears white and unmarked. The birds are not within hearing."

"May 21, 4 P. M. The nest contains two eggs. White with pinkish tint. I see no markings."

"May 22, Noon. A cloudy day. I can see into the nest perfectly well today; previously the dazzling light has made the cavity seem dark. There are four eggs in the nest. They are spotted with fine brown specks about the larger end."

"May 24, 3:30 P. M. Six eggs. Female on the nest. When I look in, she flies off, but returns in five minutes. The notes of the female when disturbed are the "*ts*" and the customary long "*Ziiit,*"— the same notes she used when building her nest and when undisturbed. I believe now that I did not see the full number of eggs until the 22nd, that the first egg was layed on the 19th and that one has been layed each day since."

"May 28, 7 A. M. A damp cloudy morning, temperature 46°, Wind east. The female is on the nest facing the main entrance. She does not leave when I peek in two feet away. The male Creeper is collecting food; he goes about with a tuft of insects in his bill,— he sings even while carrying a good sized tuft. 7:40. He comes to the vicinity of the nest and calls; the female joins him,— side by side, heads up, on a tree trunk near the nest he feeds her. She flutters her wings like a young bird asking for food. She returns soon to the nest and the male retires. At 7:45, he returns and, calling "*Ziiit,*" flies to the nest. His mate reaches out and takes food from his bill,— her head appears at main en-

trance. She must be on the side of the nest. Again at 8:15, the male carries food to the nest and goes out of sight beneath the bark.

"Sometimes the Creepers climb high in a tree to where the branches are so small that, in ascending, the birds almost grasp them in their claws. They do not (or I have not yet seen them) perch crosswise on the little twigs. When crawling out a horizontal limb, they often wind about it so that the back faces the ground. Often, too, a bird sits perfectly motionless for a minute or two, even with food in its bill."

When the two birds were side by side, it was apparent that the male was slightly the darker, but this difference in color was not sufficiently marked to serve as an identification when only one bird was in sight.

"May 30. This morning Mr. Walter Faxon found the nest and the slab of bark on the ground at the foot of the nest tree. All the eggs were broken. The birds were nowhere to be seen. The heavy wind of last night was, without doubt, responsible for the catastrophe."

In the afternoon of May 18, 1913, Mr. Faxon discovered the nest of a pair of Brown Creepers in Concord, Mass.

"This nest is twelve feet from the ground behind the loosened bark of a dead white oak tree, the trunk of which, three feet up, measures 54 inches. The flake of bark which shelters the nest is attached at the top and on one side and hangs closely to the trunk. A handful of material (sticks, etc., the base of the nest) protrudes from the free lower edge. A foot above this is a tiny hole — no bigger than a mouse's hole — through which the bird crawls down to the nest. Mr. Faxon and I spent an hour (May 19) about the nest. Once a bird came out and, after feeding for a minute or two from the surrounding tree trunks, moved off. Fifteen minutes later, we heard her notes as she approached. She flew to the nest tree, alighted below the nest, crawled up to the hole, turned head downward with her back to the trunk and disappeared. The nest tree stands on high land in an open grove of white pine and oak near the shore of a small pond. Presumably the female bird is incubating."

From the report of Mr. and Mrs. C. A. Robbins of Onset, Mass., both Creepers were feeding young on May 21.

"May 26. The Concord nest, 4 P. M. After an interval when both birds are absent, one bird visits the nest three times and the other once; all four visits are made within five or ten minutes. The bird which comes oftener is paler than the other. This pale one in every instance enters and leaves the nest cavity by a tiny opening just above the protruding material, six inches below the entrance used during incubation (May 19). As this bird comes out head first, it must turn around inside. The darker bird in its one visit uses the upper hole in entering and leaving. It brings from the nest a bit of white excrement which appears almost globular in shape and flies away with it. The birds collect food for the young from the bark of the trees nearby — small insects. Once Mr. Faxon made out a spider in a parent's bill."

As in the case of the Lexington Creepers, the difference in color was diagnostic only when the birds were together.

On the second of June, from 11 A. M. till noon, Mr. Faxon and I watched the Concord Creepers feeding their young. The parents brought food to the nest every few minutes and during the entire period were almost always within sight or hearing. We soon convinced ourselves that each bird used a different hole, both on entering and leaving the nest and from the fact that the incubating bird had always entered by the upper hole we suspected that the female was still using this entrance while the male came and went below. On one occasion, we saw the "upper hole bird" creep down to the next and stand over the young with half-spread wings for a minute or two. This maternal brooding by the supposed female strengthened our opinion and when on June 3rd I heard the male sing repeatedly while the female who had entered by the upper crevice and who afterwards left by it, was in the nest, we felt no doubt of the respective sexes of the two birds. At our visit on June 2, it appeared to us that the male bird was as diligent as the female in feeding the young birds and in carrying away their excrement.

In order to determine this point with mathematical accuracy, I stationed myself at 7:15 the next morning (June 3) eighteen feet from the nest and, for the succeeding hour and a half, recorded at each visit of the parents which entrance was used and whether or not excrement was taken away on leaving. The following table indicates the result.

	7:15–7:45	7:45–8:15	8:15–8:45	Totals
♀ Upper entrance, leaves with excrement	3	0	2	5
leaves without "	8	5	6	19
♂ Lower entrance, with excrement	1	1	1	3
without "	0	1	7	8
♂ Lower entrance, without entering } with excrement	0	0	1	1
without "	5	0	4	9
Totals	17	7	21	45

♀ 24 visits — removes excrement 5 times.
♂ 21 visits — removes excrement 4 times.

During the first half hour, the male sang frequently. Evidently this interfered with his feeding the young. During the second period both parents were absent for ten minutes. Once in the hour and a half, the male, entering below, left by the upper hole. He was disturbed by the coming of the female, I think, although she went away without entering.

As the Creepers hunted about for food, and as they flew to the nest, they uttered continually both from a perch and while in the air, their single high sibilant call, "*ts*," a note which suggests the slightest chip-note of *Regulus satrapa*. Often too they give the long, tremulous "*Ziiit*," but only, I believe, when perched. When bringing food to the nest tree, the female alighted above the nest (6–10 feet) and descended to it by successive flights in loops; the male generally alighted below the nest and crept upward. Whenever the parents entered the nest, the young birds reared and I could see them plainly through the lower hole which had been enlarged by the frequent passage of the male bird. When they opened their mouths, the pale yellow lining shone out clearly in the dim light. The female parent in feeding stood head downward above the nest in the cavity behind the bark. Although more convenient, it would seem, to leave by the lower crevice (her head was almost opposite this entrance) she invariably turned and climbed out the hole by which she had entered. The male parent often took the same position, but in ten of his twenty-one visits to the nest he did not go behind the bark,— he merely reached in through the lower entrance.

Having delivered the food to the young birds, the parents waited motionless for a moment. If a nestling was ready to void excrement, he began at once to hitch and shuffle about in the nest, then, straightening his legs and raising his tail, he slowly expelled a fæcal sac upward toward his parent. The black needle-like bill of the adult bird closed immediately upon the sac and steadied it, — perhaps aided in its delivery — until it was entirely expelled. The voiding of excrement was a leisurely process; all the movements were slow; there was none of the snapping up and snatching one sees in a nest of Robins.

In watching a pair of Brown Creepers about their nest, whether they are building, incubating their eggs, or feeding their young, one is soon impressed by an air of happiness and calm which pervades the active little birds. From the behavior of many birds, one comes to associate the finding of a nest with anxiety expressed in various ways,— with the nervous panic of the Warblers, the Robin's hysterical apprehension, the noisy complaint of the Crow and even with the polite uneasiness of the gentle Field Sparrow. The Brown Creeper, however, although doubtless observant, does not seem to look upon man as a danger; he continues his work uninfluenced, I believe, by close scrutiny. Happy and calm, even under observation, the Creepers appear preoccupied in their work and the comradeship of a pair is very pretty to see. The male shares with the female her interest in the progress of the nest; even although he knows nothing of nest building he collects material and offers it to his mate. Ever ready to assist, he feeds the female while she builds and while she is sitting and, after the young are hatched, he is no less industrious than she in caring for their needs.

The young birds left the Concord nest early on June 4 (possibly June 3). At 8 A. M., two were clinging, thirty feet from the ground, to the trunk of a living white pine tree which stood not far from the nest. One or two more were on another pine trunk. The little birds were extremely difficult to find by reason of their small size, their distance from the ground, their inconspicuous color and especially because each took a station in the dark shadow immediately below a horizontal limb. Here they remained motionless for many minutes. Later, two young birds, one following the other, moved upward by feeble hitches and perched or squatted

close to the trunk in the right angle formed by the limb. In hitching over the bark, they moved almost straight upward and whenever I saw them as a silhouette against the sky, and could thus determine the point, they did not use their tails for support. The shortness of the young Creeper's tails gave to their bodies a rounded, unbird-like outline and, with their short, stubby bills of wide gape and their squatting position on the upright bark they suggested tree-toads in no small degree. Like most young birds after they leave the nest, the fledgling Creepers were more noisy than they had been the day before. They announced their whereabouts to their parents with a note not previously heard,— a high sibilant call, "*tssssi*," or sometimes clearly divided into two syllables thus:— "*ts-tssi*." The voice was very slightly tremulous and, although the pitch and delivery of the notes were decidedly Creeper-like, they suggested to Mr. Faxon and me a flock of Cedarbirds.

The female parent, impelled probably by habit, visited the nest tree three times and looked in the upper entrance hole. Once she entered the nest cavity, but returned without feeding. Finally she came to the two young birds clinging side by side on the pine trunk. She took a position below and behind them and fed one. The young bird extended his neck way back to take the food. The male bird was still associated with the family and I have no doubt that he too was feeding the young birds. He did not sing during an hour or more. We did not visit the Concord Creepers again.

The effect upon the pair of Lexington Creepers whose nest was blown down on May 30 was to excite the nest-building instinct of the female and to stimulate the male to a renewed period of song. In the afternoon of the same day, Mr. Faxon and I found the pair in the clearing closely associated,— the male singing continually, the female busily exploring dead tree trunks and creeping under loose bark, in search of a new nest site.

"May 31, 7–8 A. M. The male Creeper sings frequently; his voice rings through the wood: he sings louder and more frequently, it seems, than previously. The female carries nesting material behind a piece of bark on a dead white oak tree, 75 yards to the north of the former nest site. The new site is fifteen feet from the

ground. The bark lies closer to the trunk than on the other tree,—the cavity behind it is therefore smaller. Already pieces of wood and, I think, a feather protrude from a crevice below where the nest is to be. Once the male comes to the tree, but he does not bring nesting material."

"June 1, 8:30–10 A. M. The birds have abandoned the nest on which the female was working yesterday in favor of a new site 25 yards to the south of the original nest. The new site (No. 3) is in the same hollow as the first nest; the tree (a black oak) is smaller, but as was the case in both the other trees, it is dead and much of the bark still clings to it. The nest is already well under way. Our attention was attracted to it by the material projecting beneath a loose cuff-shaped bit of bark which nearly encircles the tree. At two points, one above the nest and the other below it, the cuff is attached to larger areas of unseparated bark. The birds enter the cavity from above. The entrance is six inches above the nest and eight feet from the ground. The male sings freely this morning and much of the time remains in the vicinity of the nest, often accompanying the female on her excursions for nesting material. When we first came upon the pair, the female was making long flights from the nest. She brought in bits of bark and some fuzzy material (fern down or caterpillar webbing). We saw her collect also bits of bark from nearby trees. Twice at least the male brought material and delivered it (bark or dead wood) to the female who was in the nest cavity. The female made half a dozen long flights, returning every two minutes. Then she flew eight times in the next ten minutes to a very small dead white pine a few yards away and returned each time with one or more fine twigs. Often after returning with a twig six inches long, she had some difficulty in forcing it through the entrance hole. She was wise enough, however, to turn her head so that the twig might slip in end first. Once, when she brought in a beakful of fern down, the material kept catching on the rough bark and tripping her up, but by bending her neck backward she was able to hold the stuff clear of the bark. In her trips to the little dead pine, the Creeper always alighted on the slender trunk, but in order to reach the terminal twigs she had to hop out on the smaller branches. Sometimes, when these were very small, she perched crosswise upon them; often she crawled

around them,— her back to the earth. When perched, her tail hung straight downward, like a Phœbe's or a Brown Thrasher's when he sings. She broke off the twigs by tugging at them while perched or while fluttering in the air. Twice one of the pair took a bit of material from that which protruded from the base of the nest and carried it inside the nest cavity. Soon after her trips to the pine the bird disappeared for nineteen minutes. On her return, she brought a cocoon.

The use of both the fern down and the webbing is, I believe, to bind the twigs together and to hold the nest to the bark, against which it rests. In the first nest site, if it had not been for this adhesion, the nest would have fallen to the ground of its own weight, for its base was unsupported."

At 9 A. M., June 2, we found one of the birds at nest No. 3. Half an hour later, both birds were at the second nest (the nest which on June 1 we thought had been deserted). The female flew to the nest with a bit of bark ($2\frac{1}{2} \times \frac{1}{4}$ inches) then pulled from the protruding base of the nest a piece of fuzz and took it into the cavity. Five minutes later she (or her mate) crept again to the base and pulled off a bit of bark which she carried within. This economical habit of using material twice (first for the foundation and later for building the nest proper) is apparently a common practice. We saw it again and again.

On June 5, 8–8:30 A. M. I saw or heard nothing of the birds.

June 9, 7.30–8.50 A. M. The female entered nest No. 3 at 7.35. The male remained in the vicinity and sang frequently, at 7.45, 8.15, and 8.48. He called the female from the nest and fed her, and each time she returned at once to the nest where "she is evidently incubating."

On the following morning (June 10) there were two eggs in the nest No. 3. The female bird came to the nest and it seemed evident that she was laying a second set of eggs. Such was not the case, however. During the next three days the two birds busied themselves in continuing to build nest No. 2 and were never or rarely seen about the nest which contained the eggs. No more eggs were layed in this nest and our conclusion was that it had been made merely to receive the two eggs, probably the remnant of the first set.

From June 13, the Creepers were followed by Mr. George Nelson

of East Lexington who kindly permits me to add that the birds built two more nests and that in one of these the female laid eggs which were destroyed by a thunder storm early in July.

Summary of details of nests.

	Faced	Height	Tree	Circumference of trunk 3 ft. up.
Nest No. 1	ENE	8 ft.	Black Oak	33 inches
Nest No. 2	SSE	15	White Oak	29 inches
Nest No. 3	NE by N	8	Black Oak	22 inches
Concord nest	SSE	12	White Oak	54 inches

The history of these two pairs of Creepers suggests a reason for their breeding so far south of their normal range and also a cause of the failure of one pair to raise their young.

Breeding Brown Creepers are rare in eastern Massachusetts; they have been reported here in summer not more than a dozen times in the last thirty-five years. For the most part, the nests were built in white cedar or red maple trees standing in dense wet swamps.[1] One nest was found in a dead white pine [2] and another in a pitch pine [3], both surrounded by woodland. It is to be noted that these former Massachusetts nests were placed in situations not very dissimilar from those on the birds' regular breeding ground in northern New England.[4]

The sites, surrounded by trees, were well protected from the wind and the nests themselves were sheltered by strong or tenacious bark. Very different conditions prevailed in the Concord nest site and in all the five in Lexington. The six nest trees stood either in a clearing or in an open wood, and were exposed to the wind to a greater or less extent. The nests were built in trees, long dead, with brittle or frail bark,—black or white oak,—trees with which the Creeper can have had little experience in the Canadian Zone. That the Concord nest withstood the strain of the wind and of the

[1] Kennard, F. H., & McKechnie, F. B., Auk, XXII, 183–193. Chadbourne, A. P., Auk, XXII, 179–183.
[2] Kennard, F. H., & McKechnie, F. B., op. cit.
[3] Townsend, C. W., Birds of Essex County, 1905, p. 307.
[4] Brewster, W., Bull., N. O. C. IV, 199–209.

birds' continual passage in and out was due in large measure, not to the strength of the bark, but to the fortuitous circumstance that the loosened strip was adherent along the whole of one side to the firm bark of the trunk. This nest tree was, moreover, larger and in a more sheltered situation than any of the others.

For many years past, there have been few dead trees in eastern Massachusetts except in such remote localities as the almost inaccessible swamps where Messrs. Kennard and McKechnie found their Brown Creepers breeding. Of late years, however, this region about Boston, Mass., has been the very center of the gypsy and brown-tail moth invasion with the result that in many pieces of woodland the trees, after being stripped year after year by the larvæ, have been decimated. The trees which die first, and in the greatest number, are the oaks,— the favorite of the gypsy moth.

This wholesale killing of the oaks has opened up the woodland in two ways,— primarily through the loss of the foliage of the trees which have been killed and secondarily (as in the case of the clearing in Lexington) through the extensive cutting off of living trees by the owners of infested regions to save their threatened property. The result is that there are at the present time in eastern Massachusetts hundreds of acres of devastated woodland abounding in sites of suitable size for Brown Creepers' nests. Many of the sites are unfavorable for nesting, however, in that they are exposed to the full force of the wind and sheltered insufficiently by fragile oak bark.

That the two pairs of Brown Creepers noted in the present paper were the only ones which passed the summer in this vicinity is highly improbable: the increase in the number of breeding sites, unfavorable though many of them are, has no doubt induced many other Creepers to tarry in their northward spring migration and to attempt to breed here. That few have been discovered is not surprising for, as has been emphasized above, the Creepers, in the main, stay very near their nesting ground and often for long periods keep nearly silent.

It is probable, indeed, that the Brown Creeper is, for the time being, a regular summer resident, if no more than a rare one, in eastern Massachusetts and that the species will be found breeding here as long as the moths continue to kill the trees.

Mr. Walter Faxon has pointed out another change in our avifauna due to the same cause,— the killing of the trees by moths. Mr. William Brewster[1] writing in 1906 gives for this locality but a single summer record of the Hairy Woodpecker (*Dryobates villosus villosus*). At the present time, however, this bird is a not uncommon summer resident in Lexington, Mass., a town included in the Cambridge Region. Indeed during the past summer (1913) a pair bred near the clearing where the Brown Creepers built their five nests.

THE FALLACY OF THE TENDENCY TOWARDS ULTRAMINUTE DISTINCTIONS.

BY J. D. FIGGINS.

ALTHOUGH conservative ornithologists deplore and have repeatedly protested against the seeming unfortunate tendency towards the creation of endless subspecies upon differences too slight for identification by physical comparison, an examination of recent literature would indicate that but little had been accomplished.

In certain genera many identifications are quite impossible unless the student be willing to accept purely geographical evidence of an extremely doubtful character. Indeed there are now numerous forms unrecognizable by even their sponsors, except through a knowledge of the locality from which such specimens were taken; and were the subject of less importance one's regret would be limited by his sense of humor.

While a geographical interval, together with physical differences, or variations sufficiently pronounced to be apparent to the average student would seem reasonable ground for separation, conservative ornithologists doubt the wisdom of some of the late ultraminute distinctions. A continuance of this "Futuristic" school of ornithology will obviously lead to geography as a text-book of more

[1] Birds of the Cambridge Region, 1906, p. 210.

importance than the present-day literature on birds; and it will be necessary to study the subject through the use of charts resembling contour maps or weather report bulletins.

That slight physical differences, even with a geographical interval, are insufficient grounds for separation seems conclusively proven through the examination of a series of Gambel's Quail (*Lophortyx gambeli*) from western Colorado.

With a view of accounting for the presence of these birds in Colorado and possibly arriving at some conclusion regarding the causes of the changes hereafter described, a short history and description of the region is perhaps not amiss.

Accepting the various authorities as correct in believing the California Quail (*Lophortyx c. californica*) had been introduced in the neighborhood of Grand Junction, a search was made for specimens, and while the literature agrees that the experiment had proven highly successful, no evidence of the presence of these birds was found. Quail were abundant, however; but specimens taken at Olathe, Montrose Co. were obviously more nearly referable to *gambeli*, though the differences in measurements and coloration seemed to point to the possibility of a subspecies. Additional specimens were then taken at Cedaredge, Delta Co., and Grand Junction, Mesa Co., and in view of the seeming total absence of *californica*, it is reasonable to suppose *gambeli* and not *californica* was introduced there.

While this may be regarded as sufficient evidence to correct the error in identification, of more importance is the significance of the changes that have taken place during the period of introduction, and which seems to have an important and direct bearing on the question of separations based on minute distinctions.

Having failed to establish the Bobwhite in western Colorado, the gentlemen interested in the introduction then secured nearly one thousand quail from California, which they liberated 'at or near Montrose, Montrose Co.'[1]

[1] Contrary to the literature and general belief, investigation proves conclusively the original lot of birds were liberated at Montrose and not Grand Junction. Evidence of this is found in the official records of Montrose Co. with the date, 1885, and the names of the gentlemen financing the undertaking. Unfortunately the record does not give the exact locality from which the birds were taken, and extensive correspondence has not revealed additional information.

These birds, unlike the Bobwhite, immediately sought the bench lands: where they were undisturbed by irrigation and repeated harvesting of alfalfa,— elements that had proven disastrous to the latter. Finding excellent cover there and rearing two broods a season, their increase was phenomenal; and through natural processes and stocking additional sections, the birds were soon abundant throughout the entire region. Broadly speaking, the Gambel's Quail may now be considered as occupying all suitable localities within the drainage areas of the Uncomphgre and Gunnison rivers and the lower valley of the Grand river within the state.

This region is of a sedimentary nature, deeply eroded by glacial action and ancient water courses, and is characterized by broad valleys laterally terminating in morainal benches or high mesas. While orchards and agricultural activities are much in evidence, the broken country is undisturbed, and there the quail find excellent cover in the thick growth of "chico" and sage.

Since the precipitation is but 8.31 inches the region may be considered as arid: with temperatures ranging from −16° to +104° at Grand Junction to probably −35° nearer the main range of mountains. The altitude varies from 5,500 ft. at the Utah-Colorado boundary to 6,000 ft. at Somerset, Gunnison Co.

A doubtful record of Gambel's Quail is credited to Colorado (see Cooke's 'Birds of Colorado') but the distance given by Sclater, (see Sclater's 'A History of the Birds of Colorado') as he agrees, would evidently assign the locality to New Mexico. That this record is referable to the introduced birds is extremely unlikely; and equally so is the possibility of their presence in the western part of the state due to migrations from the south; for although they are known to occur at considerable altitude, a mountain range of large extent separates the two regions,— averaging more than 10,000 ft.[1]

With a view of affording comparison of specimens from the two localities, both California and Colorado birds are described below.

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[1] Three months continuous systematic collecting along the southern boundary of Colorado from the Utah line to the Rio Grande river failed to reveal the slightest trace of Gambel's Quail except a single specimen taken by H. H. Sheldon at Elco, La Platta Co., in June of this year, and five specimens at Cortez, Montezuma Co. The former capture is probably due to the introduction of these quail at Huntington, New Mexico, and the latter to recent introductions at Cortez.

DESCRIPTION OF *Lophortyx gambeli* FROM CALIFORNIA.

Adult Male.

Occiput; light rufus posteriorly, dark chestnut anteriorly.
Band of white across forehead and extending to nape.
Throat; dull brownish black.
Crest; sooty brown.
Forehead; varying from brownish black streaked with gray to equal markings of gray and black.
Band of white around black of throat, extending to eye.
Chest; creamy gray, quills dusky gray.
Back of neck; gray, quills dusky gray.
Back, rump, scapulars and tertials; brownish gray, quills distinct reddish brown.
Inner edge of tertials; buff to creamy white.
Tail; dark blue-gray, tinged on edge and tip with brownish.
Upper tail coverts; same as rump, but mottled with grayish white.
Primaries, secondaries and spurious primaries; grayish brown, outer web lighter, quills brown.
Sides; rich chestnut streaked with white.
Flanks; buff, broadly streaked with chestnut and gray.
Upper belly; creamy white to deep buff.
Belly; brownish black, lateral and posterior feathers mottled with buff and chestnut.
Lower belly; buff to ochre with brown markings.
Under tail coverts; light to deep buff with bar of grayish brown along quills.
Feet; flesh brown.
Bill; dark brown to brownish black.

DESCRIPTION OF *Lophortyx gambeli* FROM COLORADO.

Adult Male.

Occiput; uniform brown.
Band of white across forehead and extending to nape.
Throat; glossy black.
Crest; sooty black.
Forehead; equally streaked with gray white and black.
Band of white around black of throat and extending to eye.
Chest; pure blue-gray, quills dusky gray.
Back of neck; pure blue-gray, quills dusky gray and terminating in a tip of dark brown.
Back, rump, scapulars and tertials; gray, tinged with olive.
Inner edge of tertials; white to creamy white.
Tail; dark blue-gray, quills brownish black.
Primaries and spurious primaries; brownish gray, lighter on outer edge, quills dark brownish gray.
Sides; dark purplish brown, streaked with white.
Flanks; buffy cream, broadly streaked with brown.
Upper belly; very pale buff.
Belly; uniform slaty black.
Lower belly; very pale buff.
Under tail coverts; creamy buff with bar of brownish gray along quills.
Feet; flesh brown.
Bill; brown to vandyke brown.
Iris; brown.

Adult Female.

Occiput; reddish brown.
Crest; dusky black.
Forehead; whitish, streaked with gray.
Throat; light buff, streaked with brown and gray.
Chest; buffy gray, median line and tips of feathers brown.
Inner edge of tertials; buff to creamy white.
Back, rump, scapulars and tertials; grayish brown, quills brown.
Tail; dark gray, strongly tinged and edged with brown.
Sides; light chestnut, streaked with white.
Flanks; dark buff to cream, streaked with brown.
Belly and breast; dark buff to creamy white, strongly streaked and tipped with brown.
Under tail coverts; same as belly, but broadly streaked with brown.
Feet; brown.
Bill; brown.

Adult Female.

Occiput; brownish gray.
Crest; dark slate.
Forehead; gray, streaked with black.
Throat; buffy gray streaked with dark gray.
Upper chest; gray, quills indistinct.
Back of neck; gray, median line and tips of feathers dusky gray.
Back, rump, scapulars and tertials; gray, tinged with white to creamy.
Inner edge of tertials; white to creamy white.
Tail; dark blue-gray, quills brownish black.
Sides; chestnut brown streaked with white.
Belly and breast; light creamy buff to grayish buff, sparsely tipped and streaked with dark gray and brown.
Under tail coverts; same as belly, but streaked with dark gray.
Bill; grayish brown.
Feet; light flesh brown.

From the above descriptions many differences will be noted; but those of major importance, are, the difference in the colors of the occiput, wings, rump, tail and the black of the throat and belly. Another item of equal importance is the uniform persistence in the characters in Colorado specimens and the variation in birds from California.[1] Much of the latter difference is no doubt due to season; but there is a marked similarity when localities are considered.

Upon a closer analysis of the colors it is readily seen that the California specimens are invariably modified by reds and browns,

[1] Through the kindness of Mr. Joseph Grinnell I have been enabled to examine a series of more than fifty specimens of Gambel's Quail from California which throws much light upon the subject. These birds were taken at various points in the southern section of the state and the variations in some instances are far more pronounced than many of the recent separations. Indeed were one inclined to accept the modern methods of creating subspecies there would be little difficulty in making two, and perhaps three or four distinctions.

while this peculiarity is absent in Colorado birds. Briefly, then, the result of introduction has been a tendency towards eliminating the reds and browns, the development of olive to replace those colors and in increasing the purity of the blacks and grays.

Since the comparatively short period of introduction has resulted in such marked changes in coloration, it is but natural to expect possible differences in measurements. That they are so pronounced however, is a matter of surprise. In offering these it is understood that the tables of lengths are of little value when taken from dried skins; but they are included. While the length measurements of Colorado specimens are incomplete, those given are from birds in the flesh and will be of value when opportunity permits like measurements of California specimens.

Measurements of Lophortyx gambeli from California.[1]

Sex.	Locality.	Date.	Length.	Wing.	Tail.	Tarsus.	Mid. toe.	Nail.
♂	Mecca Riverside Co. Cal.	April 4	8.85	4.37	4.30	1.10	1.35	.28
♂	Colo. River "	" 19	10.22	4.30	4.50	1.25	1.50	.37
♂	New River, "	" 15	9.43	4.45	4.25	1.20	1.37	.32
♂	Pinyon Flat, "	June 21	9.00	4.20	4.05	1.12	1.37	.33
♂	Carrizo Creek "	Aug. 23	9.95	4.45	4.37	1.12	1.36	.37
♂	" " "	" 26	10.05	4.38	4.37	1.10	1.45	.30
♂	New River, Cal. Desert	Nov. 26	10.00	4.70	4.75	1.25	1.52	.33
♂	" " " "	" "	9.62	4.25	4.12	1.12	1.45	.45
♂	" " " "	" 25	9.45	4.45	4.37	1.14	1.45	.38
♂	" " " "	" "	9.55	4.50	4.48	1.30	1.51	.37
♂	" " " "	" "	9.28	4.50	4.52	1.15	1.50	.37
♂	Below Needles, Colo. River	Feb. 21	8.00	4.37	4.12	1.15	1.45	.37
♂	" " " "	" "	8.78	4.50	4.15	1.25	1.52	.39
♂	" " " "	" "	8.45	4.60	4.18	1.15	1.45	.28
♂	Mecca Riverside Co. Cal.	Mch. 30	9.38	4.55	4.45	1.12	1.28	.37
♂	Riverside Mt. Colo. River	" 19	9.75	4.50	4.25	1.16	1.43	.32
♂	" " " "	" 21	9.30	4.55	4.37	1.13	1.38	.38
♂	" " " "	" "	9.50	4.51	4.25	1.12	1.44	.46
♂	" " " "	" 16	9.25	4.62	4.45	1.15	1.45	.39
♂	" " " "	" "	9.15	4.50	4.25	1.12	1.28	.30
♂	Blythe, Colo. River Cal.	" 22	9.05	4.38	4.25	1.17	1.38	.38
♂	Pecachos " " "	April 10	9.75	4.55	4.51	1.15	1.33	.29
♂	Mecca, Riverside Co. "	" 5	9.62	4.49	4.27	1.13	1.37	.37

[1] All measurements in inches.

Sex.	Locality.	Date.	Length.	Wing.	Tail.	Tarsus.	Mid. toe.	Nail.
♂	Salt Creek, Imp. Valley	April 26	9.25	4.39	4.25	1.13	1.26	.32
♂	Coyote Well, Imperial Co.	Mch. 27	8.50	4.38	4.20	1.20	1.43	.34
♂	Below Needles, Colo. River	Feb. 22	9.00	4.53	4.12	1.10	1.45	.38
♂	Pilot Knob, San Diego, Co.	Mch. 10	9.50	4.62	4.63	1.09	1.38	.38
♂	New River, Salton Lake	April 15	9.45	4.25	4.25	1.13	1.36	.30
♂	Near Imperial	May 11	9.02	4.30	4.87	1.14	1.36	.34
♂	" "	" "	9.25	4.55	4.25	1.15	1.32	.33
♀	Below Needles, Colo. River	Feb. 21	8.30	4.52	4.13	1.13	1.28	.39
♀	" " " "	" "	8.20	4.51	4.01	1.15	1.45	.38
♀	" " " "	" "		4.49		1.13	1.38	.45
♀	Pilot Knob, San Diego, Co.	Mch. 10	9.00	4.38	4.23	1.15	1.32	.37
♀	Riverside Mt. Colo. River	" 16	9.37	4.50	4.20	1.13	1.38	.37
♀	Mecca, Riverside Co.	" 10	10.00	4.38	4.25	1.12	1.38	.38
♀	" " "	" 18	10.30	4.64	4.52	1.15	1.45	.46
♀	" " "	" 19	9.80	4.34	4.20	1.14	1.40	.38
♀	Riverside Mt. Colo. River	" 21	8.25	4.27	4.20	1.15	1.38	.31
♀	Blythe, Colo. River	" 23	8.75	4.37	4.00	1.07	1.33	.30
♀	San Jacinto Mt.	June 12	8.30	4.28	4.05	1.12	1.28	.28
♀	East of Pecakos, Colo. River	April 19	9.78	4.39	4.20	1.12	1.39	.29
♀	New River, Colo. Desert	Nov. 25	9.95	4.30	4.38	1.12	1.38	.38
♀	" " " "	" 25	8.95	4.45	4.15	1.13	1.37	.40
♀	" " " "	" 26	9.20	4.60	4.25	1.14	1.45	.37
♀	" " " "	" 28	9.55	4.58	4.38	1.15	1.45	.38
	Average Male		9.36½	4.45	4.31	1.15	1.40	.35½
	Minimum.		8.00	4.20	3.87	1.09	1.26	.28
	Maximum.		10.22	4.70	4.75	1.30	1.50	.46
	Average Female.		8.98	4.50	4.21	1.13	1.38	.33½
	Minimum.		8.20	4.27	4.00	1.07	1.28	.30
	Maximum.		10.00	4.60	4.52	1.15	1.45	.46

Measurements of Lophortyx gambeli from Colorado.

♂	Cedaredge, Delta Co.	Jan. 31		4.42	3.90	1.15	1.48	.38
♂	" " "	" "		4.62	4.00	1.20	1.50	.38
♂	" " "	" "		4.50	3.75	1.15	1.40	.37
♂	" " "	" "		4.50	3.65	1.13	1.38	.37
♂	" " "	" "		4.55	4.08	1.15	1.37	.37
♂	Olathe, Montrose Co.	Dec. 20	10.83	4.65	3.72	1.11	1.45	.38
♂	" " "	" "	11.27	4.48	3.70	1.10	1.40	.36
♂	" " "	" "	11.29	4.50	3.64	1.08	1.35	.34
♂	" " "	" "	11.70	4.59	3.54	1.05	1.40	.38
♂	" " "	" "	11.36	4.73	3.53	1.08	1.31	.31
♂	Grand Junction	Feb. 26	11.00	4.55	4.20	1.25	1.37	.34
♂	" "	" "	11.25	4.56	3.95	1.19	1.42	.35

Sex.	Locality.	Date.	Length.	Wing.	Tail.	Tarsus.	Mid. toe.	Nail.
♀	Olathe Delta Co.	Sept. 24		4.55	3.70	1.06	1.37	.33
♀	" " "	Dec. 20	10.29	4.23	3.09	1.05	1.30	.33
♀	" " "	" "	10.52	4.38	3.28	1.07	1.45	.35
♀	" " "	" "	10.50	4.66	3.57	1.06	1.32	.35
♀	Cedaredge,	Jan. 31		4.37	3.75	1.00	1.35	.35
♀	"	" "		4.37	3.65	1.05	1.27	.34
♀	"	" "		4.48	3.65	1.10	1.34	.36
♀	"	" "		4.55	3.80	1.12	1.30	.35
♀	Grand Junction	Feb. 26	11.50	4.50	4.10	1.14	1.36	.32
♀	" "	" "	10.85	4.61	4.03	1.15	1.38	.38
♀	" "	" "	11.00	4.70	3.92	1.12	1.39	.32
	Average Male.		11.26	4.35½	3.80½	1.20	1.40	.36½
	Minimum.		10.83	4.40	3.54	1.05	1.31	.31
	Maximum.		11.70	4.70	4.20	1.25	1.50	.38
	Average Female.		10.78	4.50	3.69½	1.08	1.35	.34½
	Minimum.		10.29	4.23	3.09	1.00	1.27	.32
	Maximum.		11.50	4.70	4.10	1.15	1.45	.38

Comparative average of California and Colorado Specimens.

Males from California		4.45	4.31	1.15	1.40	.35½
" " Colorado		4.35½	3.80½	1.20	1.40	.36½
Females from California		4.50	4.21	1.13	1.38	.33½
" " Colorado		4.49	3.69½	1.08	1.35	.34½
Comparative differences in Males		.09½	.50½	.05	.00	.01
" " " Females		.01	.51½	.05	.03	.01¼

Note. Since the length measurements of California specimens are without value through being taken from dried skins, comparison is omitted.

In considering the causes of the changes that have taken place in Gambel's Quail since its introduction into Colorado, perhaps the most important are food, climate and environment. The wide range of the species in California imposes like conditions and hence the differences in the birds there, as noted above. The question, therefore arises, what constitutes a subspecies? A great number of the recent subdivisions are based on far less evidence and reason than is apparent in this example of introduced birds. If the extremists are justified in their activities are not the Colorado birds entitled to subdivision? If not, why not?
Is it not time to return to sanity?

NOTES ON THE ORNITHOLOGY OF CLAY AND PALO ALTO COUNTIES, IOWA.

BY A. D. TINKER.[1]

Plates XI–XII.

THE following paper is based upon material secured by the University of Michigan-Walker Expedition to northwestern Iowa in the summer of 1907. The field notes are those of Alexander G. Ruthven, who has also supplied the general summary of the habitat

Fig. 1. Map showing area covered by survey.

distribution and has assisted in the preparation of the paper. The field work was done by Drs. Ruthven and Max M. Peet, and covered the period between July 1 and September 1. Three papers [2] have appeared on the results of this work.

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[1] Museum of Zoology, University of Michigan.

[2] Ruthven, Alexander G., The Faunal Affinities of the Prairie Region of Central North America. Amer. Nat., XLII, pp. 388–393. Contributions to the Herpetology of Iowa. Proc. Iowa Acad. Sci., 1910, pp. 198–209. Ruthven, Alexander G., and Wood, Norman A., Notes on a Collection of Mammals from Northwestern Iowa, *ibid.*, 1912, pp. 203–205.

The investigations were confined to the townships of Sioux, Riverton, Lake, Freeman and Logan in Clay County and Highland and Lost Island in Palo Alto County. These townships are in the adjacent parts of the two counties (Fig. 1). 334 skins, 12 nests and 8 sets of eggs, representing 86 species were secured, to which have been added by purchase seven specimens, representing five species. Most of the stomachs were preserved for future study.

HABITATS.

A description of the region has been given by Ruthven,[1] and it will be sufficient to quote the following general account of the habitats. "Owing to the relief there is more diversity in the biotic environments of the region investigated than is usual in the prairie-plains region. The ridges and knobs, varying in height, are separated by small areas of flat or gently rolling prairie, and everywhere are lakes, ponds and sloughs of various sizes. The immediate area studied was on the water-shed between the Missouri and Mississippi river systems, the lakes examined being the source of streams tributary to the different systems."

Ruthven has classified the different habitats as follows:

UPLAND.

Upland Prairie. Uncultivated areas, covered by the original vegetation of grasses and herbs, are still to be found on some of the ridges. These areas are, however, becoming fewer in number yearly, as more land is placed under cultivation. (Plate XI, Fig. 1.)

Grain Fields. The greater part of the higher land has, within the past thirty years, been placed under cultivation, and this has been mostly at the expense of the upland prairie areas.

Groves. In many places groves of soft maple, cottonwood, wil-

[1] Ruthven, Alexander G., Contributions to the Herpetology of Iowa, p. 200.

low, and box-elder have been planted on the uplands. These are so open, however, as to have no appreciable effect on the terrestrial vertebrate fauna, with the exception of the birds, the local distribution of which they are profoundly modifying.

LOWLAND.

Lowland Prairie (*Meadows*). The low, generally poorly drained, areas have in many instances been reserved for hay-land or pasture. In some places the original vegetation has been supplanted by tame grasses; in other places it remains undisturbed. The original vegetation consists of a dense growth of tall grasses and herbaceous forms. (Plate XI, Fig. 2.)

Swamps (*Sloughs*). The swamps are mostly devoid of trees and filled with a rank growth of grasses and sedges. The vegetation grows principally in clumps and on hummocks composed of roots and decaying vegetation. They are mostly uninfluenced by man, except as they are drained.

Shores of Lakes and Streams (*Marginal Forests*). This habitat supports the only natural timber in the region, and, where undisturbed, there is always a comparatively dense growth along the shores of the streams and larger lakes. The timber zones are, however, much narrower, and the trees more scrubby, than in the southern parts of the state. In most places at the present time this timber has been largely removed. (Plate XII, Fig. 1.)

AQUATIC.

The aquatic life is found in the lakes, ponds, sloughs and streams. The conditions in these habitats are very similar, as the lakes are for the most part shallow and the streams slow-flowing. (Plate XII, Fig. 2.)

1. UPLAND PRAIRIE, CLAY COUNTY, IOWA.
2. LOW MEADOW, CLAY COUNTY, IOWA.

LOCAL DISTRIBUTION OF BIRDS.

As was to be expected the birds may be divided rather sharply into five groups — woodland, prairie, meadow, aquatic (including waders), and marsh forms. There is some overlapping because some of the prairie forms will nest in the groves, some of the marsh forms feed on the prairie, and some of the woodland forms nest on fence posts, telegraph poles, etc., on the prairie and may feed there, but the five groups are nevertheless rather well defined. The more common species and the major habitats which they frequent are as follows:

Woodlands (Starred species only observed as migrants): Mourning Dove, Flicker, Kingbird, Phœbe, Robin, Bluebird, Bob-white, Long-eared Owl, Screech Owl, Black-billed Cuckoo, Yellow-billed Cuckoo (marginal forests only), Downy Woodpecker, Red-headed Woodpecker, Least Flycatcher, Alder Flycatcher, Blue Jay (marginal forests only), Orchard Oriole, Baltimore Oriole, Bronzed Grackle, Goldfinch, Rose-breasted Grosbeak, Warbling Vireo, Black and white Warbler*, Yellow Warbler, Wilson's Warbler,* Catbird, Brown Thrasher, Parkman's Wren, Long-tailed Chickadee, Bay-breasted Warbler*, Song Sparrow, Cowbird.

Prairies: Prairie Chicken, Upland Plover, Flicker, Nighthawk, Arkansas Kingbird, Prairie Horned Lark, Dickcissel, Western Grasshopper Sparrow, Migrant Shrike, Bluebird, Short-eared Owl, Kingbird, Tree Swallow.

Meadows: Bobolink, Dickcissel, Marsh Hawk, Short-eared Owl, American Bittern, Meadowlark.

Swamps: Black Tern, American Bittern, Least Bittern, King Rail, Virginia Rail, Sora Rail, Yellow-headed Blackbird, Red-winged Blackbird, Swamp Sparrow, Maryland Yellow-throat, Prairie Marsh Wren, Short-billed Marsh Wren.

Aquatic Habitats and Beaches (Starred species only observed as migrants): Semipalmated Plover*, Stilt Sandpiper*, Pectoral Sandpiper*, Least Sandpiper*, Solitary Sandpiper*, Spotted Sandpiper, Yellowlegs*, Greater Yellowlegs*, Killdeer, Pied-billed Grebe, Blue-winged Teal, Shoveller, Great Blue Heron, Green Heron, Florida Gallinule, Coot, Kingfisher.

It will be noted that no division into grove and natural woodland forms is attempted in the above grouping, and an inspection of the data given in the list of species will show that this is because no differences in the faunas of the two habitats are apparent. The groves (which have in every instance been planted) are profoundly influencing the local distribution of the woodland forms. Formerly the only trees in the region were about the lakes and streams, but the narrow zones of original woodland are rapidly being cleared, which would probably eliminate a number of species if it were not for the fact that the groves and the trees that have been planted along the roads serve as refuges. As it is, there is apparently a congestion of the woodland species. In one grove about one hundred yards square, grouped about farm buildings, and composed of low box elders and willows and well cleared of underbrush, sixteen species of birds were found nesting and a number of these were represented by several pairs. It is evident that the low trees, lack of underbrush, and the location of this grove must have constituted unfavorable conditions for nesting birds, and to these was added the presence of scores of English Sparrows which also nested in the trees. A more careful study would probably show further that many of the woodland species are forced to the prairie for food: that some of them are also forced to breed on the prairie is apparently shown by the nesting of the Flicker, Tree Swallow, Kingbird and Bluebird on the fence posts.

LIST OF SPECIES.[1]

1. **Podilymbus podiceps.** PIED-BILLED GREBE.— Only a few birds of this species were seen. An adult male was taken, July 29, in the rushes of the east end of Elbow Lake, and on July 16 a nest with six eggs was found in the same habitat.

2. **Hydrochelidon nigra surinamensis.** BLACK TERN.— The Black Tern was found in numbers. It nested in the wet marshes that form the outlet to Lost Island Lake, and roamed over all of the grassland habitats. Immature birds just able to fly were taken on and after July 3.

[1] As the field work covered a restricted area (Fig. 1) exact localities have often been omitted in the annotations in the following list, the habitat data being deemed sufficient. The dates of observations are also omitted, except in the case of migrants and immature birds, nests and eggs.

1. SHORE OF TRUMBULL LAKE, CLAY COUNTY, IOWA.
2. EAST END OF ELBOW LAKE, PALO ALTO COUNTY, IOWA.

3. **Querquedula discors.** BLUE-WINGED TEAL.— This was the most common duck observed. Nests and eggs (11 in one nest) as well as young birds in all stages of development were found in the outlets of Elbow and Lost Island Lakes. Most of the young were well feathered and able to fly on July 16.

4. **Spatula clypeata.** SHOVELLER.— A single specimen, an adult female, secured in the outlet of Lost Island Lake, August 21, was the only one of this species observed.

5. **Botaurus lentiginosus.** BITTERN.— Very common about the marshes of the region. The nests were found most frequently in the low meadows bordering the marshes.

6. **Ixobrychus exilis.** LEAST BITTERN.— The Least Bittern was quite common at the east end of Elbow Lake, where a number of pairs nested among the rushes growing in water from three to four feet deep. An adult male and female with nest and six eggs (slightly incubated) were taken here on July 16, and on July 30 six nestlings and another nest with five eggs nearly ready to hatch were found in the same habitat.

7. **Ardea herodias herodias.** GREAT BLUE HERON.— A relatively common species about the lakes and marshes of the region. On August 15, an adult female was taken at Virgin Lake, and on August 22 an adult male was secured at Elbow Lake.

8. **Butorides virescens virescens.** GREEN HERON.— Occasionally noted about the marshes but not as common as the preceding species. An immature male with down-tipped feathers on the head was taken at Elk Lake on August 19, and on August 9 an adult female was secured at Trumbull Lake. The species was also observed in the outlet of Elbow Lake.

9. **Nycticorax nycticorax nævius.** BLACK-CROWNED NIGHT HERON. — On August 21 an immature male was taken by Ruthven in a clump of willows along a road and about a half mile from the outlet of Elbow Lake. This was the only individual of the species that was certainly identified. The bird had become exhausted, and was evidently forced to alight outside of its regular habitat.

10. **Rallus elegans.** KING RAIL.— There is an adult male of this species, taken near Ruthven, October 4, 1909, by Nels Hansen, in the museum collection.

11. **Rallus virginianus.** VIRGINIA RAIL.— Undoubtedly this species is rather common about the marshes of the region studied, although it was only noted occasionally. Three specimens were taken: one, an immature male well feathered, was secured in a slough on the south side of Elbow Lake on August 3.

12. **Porzana carolina.** SORA.— The only Sora seen was an adult male taken at the outlet of Lost Island Lake, August 8.

13. **Gallinula galeata.** FLORIDA GALLINULE.— Very common about the marshes of the region explored. Several nests with eggs and numbers of immature birds were noted in the rushes and sedges. On August 2,

an adult male and female with a nest and seven eggs were found at the east end of Elbow Lake, and well feathered birds were secured at the outlet of Elbow Lake, August 19 and 21, in a pond near Elbow Lake, on August 21, and at the outlet of Lost Island Lake, on August 30.

14. **Fulica americana.** COOT.— A common breeding species about all of the lakes and marshes in the region. Immature birds were taken at the east end of Elbow Lake on July 16 and 29, and at the outlet of Lost Island Lake on August 6, 12 and 14. Some of the young taken on July 16 and August 14 were still in the down.

15. **Micropalama himantopus.** STILT SANDPIPER.— Two adult males of this sandpiper were taken on a pond near Virgin Lake, August 15, and on August 27 an adult female was secured at a pond in Clay County. These were the only birds seen.

16. **Pisobia maculata.** PECTORAL SANDPIPER.— The only Pectoral Sandpipers seen were in small flocks from which the following specimens were taken; an adult male and female in a swampy meadow near the outlet of Lost Island Lake, August 8, an adult female near Virgin Lake, August 15, and an adult male near a pond in Clay County, August 11.

17. **Pisobia minutilla.** LEAST SANDPIPER.— Rather common about the ponds after August 11. Only adult males were secured, five at a pond in Clay County, August 11, 19 and 21, and one near Virgin Lake, August 15.

18. **Totanus melanoleucus.** GREATER YELLOW-LEGS.— An adult female of this species was taken near a pond in Clay County, August 15. This was the only bird seen.

19. **Totanus flavipes.** YELLOW-LEGS.— The only Yellow-legs observed were in several small flocks from which an adult male was taken in a marsh, August 12, an adult female at a small pond near Virgin Lake, on August 15, and an adult male at a pond in Clay County, August 22.

20. **Helodromas solitarius solitarius.** SOLITARY SANDPIPER.— A common species during the fall migrations. Only adults were seen, and the first bird was observed on July 31. After this date and throughout August they were found about the prairie ponds, on the mud flats in the sloughs, and on the lakes.

21. **Bartramia longicauda.** UPLAND PLOVER.— Not uncommon on the higher grassland areas. Immature birds (males) were found in a pasture south of Elbow Lake and on grass-covered hills in eastern Clay County on August 3 and 19. These birds were well feathered.

22. **Actitis macularia.** SPOTTED SANDPIPER.— Common in the breeding season about the lakes with sandy shores. On August 22 they were observed about the ponds on the prairie.

23. **Oxyechus vociferus.** KILLDEER.— Very common throughout the region studied; preferring the vicinity of water but often found at some distance from it. Immature specimens were secured in a slough south of Elbow Lake, August 2, in a pasture in eastern Clay County, August 8,

and at a pond in Clay County, August 12 and 29. These birds are well feathered but have down-tipped tail feathers.

24. **Ægialitis semipalmata.** SEMIPALMATED PLOVER.— The only record of this species secured was an adult male taken at a pond in Clay County, September 1.

25. **Colinus virginianus virginianus.** BOB-WHITE.— This bird is not uncommon throughout the region examined. It was most frequently observed about the wooded areas.

26. **Tympanuchus americanus americanus.** PRAIRIE CHICKEN.— Formerly this species was very common in Clay and Palo Alto Counties, according to the observations of Ruthven, but in recent years it has been nearly exterminated. It was not found in the summer of 1907, but on November 11, 1911, Nels Hansen took an adult female, near Ruthven, that is now in the museum.

27. **Zenaidura macroura carolinensis.** MOURNING DOVE.— Very common throughout the region. The nests are placed in the wooded areas and in the willows along the roads. Two nestlings were taken in a willow tree on July 2 (hatched July 1). Another was taken in a grove, July 12, and a nest with two eggs was found, August 15, in the woods at Virgin Lake.

28. **Circus hudsonius.** MARSH HAWK.— Common throughout the region, frequenting and nesting in the low meadows. An immature male was taken near the outlet of Elbow Lake, August 28.

29. **Haliæetus leucocephalus leucocephalus.** BALD EAGLE.— The species was not found in the summer of 1907, but an immature female taken in Palo Alto County, October, 1907, by Nels Hansen, is in the museum.

30. **Asio wilsonianus.** LONG-EARED OWL.— An adult female was found in a grove near Lost Island Lake, July 22.

31. **Asio flammeus.** SHORT-EARED OWL.— An adult female Short-eared Owl was taken on upland prairie in eastern Clay County, August 5.

32. **Otus asio asio.** SCREECH OWL.— This species was not found in 1907. An adult male, taken February 1, 1909, and an adult female, secured on February 2, 1909, in Palo Alto County, by Nels Hansen, are in the museum.

33. **Nyctea nyctea.** SNOWY OWL.— Occasionally seen in the winter (Ruthven).

34. **Coccyzus americanus americanus.** YELLOW-BILLED CUCKOO. — Not uncommon in the wooded areas. One specimen, an adult female, was taken in a grove of willows near Elbow Lake, July 17, another at Elk Lake, August 21, and a third in a grove on high ground, August 28.

35. **Coccyzus erythrophthalmus.** BLACK-BILLED CUCKOO.— Occasionally noted in the groves and timber zones along the streams and lakes. An adult male and female were found in a grove near Lost Island Lake, July 22, and others were seen in a grove on high ground at different times during July and August.

36. **Ceryle alcyon alcyon.** BELTED KINGFISHER.— Common about the lakes.

37. **Dryobates pubescens medianus.** DOWNY WOODPECKER.— Several were seen in the woods about the lakes. An adult male was taken at Lost Island Lake, July 26.

38. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.— An adult male taken in a grove in Palo Alto County, July 17, and an adult female found in the woods at Lost Island Lake, July 18, were the only birds of this species seen.

39. **Colaptes auratus luteus.** NORTHERN FLICKER.— Very common both on the prairie and in the groves and timber zones along the lakes and streams. Nests were found in the groves and in hollow fence posts on the prairie.

40. **Chordeiles virginianus virginianus.** NIGHTHAWK.— Common throughout the region, frequenting the higher grassland areas and grain fields. No nests or immature birds were found.

41. **Chætura pelagica.** CHIMNEY SWIFT.— Noted occasionally in the evening, flying about near the town of Ruthven.

42. **Archilochus colubris.** RUBY-THROATED HUMMINGBIRD.— Only observed a few times. An adult female was taken at Lost Island Lake, August 27.

43. **Tyrannus tyrannus.** KINGBIRD.— A common breeding species, nesting in the groves and timber zones along the lakes and on fence posts on the prairie. On July 2 a nest fifteen feet from the ground in a grove contained no eggs. On July 23 a nest with nestlings was found in the top of a fence post five feet high in a meadow, and on July 24 a nest with three nestlings was found four feet from the ground in willows in a grove.

44. **Tyrannus verticalis.** ARKANSAS KINGBIRD.— Noted in most of the prairie districts throughout the region. Adults and immature birds of both sexes were secured, the latter on August 7, 15, 20, and 26. A nest was found twenty-five feet from the ground in a poplar tree along a road, August 7, and contained three young birds well feathered but just able to fly.

45. **Myiochanes virens.** WOOD PEWEE.— Occasionally observed in the groves and timber belts along the streams and lakes. A well feathered immature bird and a nest were observed in a grove, August 3.

46. **Empidonax trailli alnorum.** ALDER FLYCATCHER.— A very common species about the streams and lakes, and found in lesser numbers in upland groves. Adults were observed throughout July and August, and an immature female (well feathered) was taken on August 13.

47. **Empidonax minimus.** LEAST FLYCATCHER.— Common breeder in all of the groves and in the woods about the lakes and streams; also frequents the willows along the roads. An immature female (well feathered) was taken in a grove near Lost Island Lake, August 7.

48. **Otocoris alpestris praticola.** PRAIRIE HORNED LARK.— Common on the higher grassland and in the cultivated fields throughout the region. No immature birds were taken.

49. **Cyanocitta cristata cristata.** BLUE JAY.— One specimen, an adult female, was taken at Lost Island Lake, July 26. No others were noted.

50. **Corvus brachyrhynchos brachyrhynchos.** CROW.— Observed in small flocks in July and August, on the prairie, in groves, and in the woodland along the lakes and streams. The nests were only noted along the Ocheyedan River at Spencer and at Gilletts Grove on the Little Sioux River.

51. **Dolichonyx oryzivorus.** BOBOLINK.— The Bobolink was only found in small numbers. The breeding pairs were only noted in low meadows, but on August 26 a small flock in winter plumage was seen on upland prairie.

52. **Molothrus ater ater.** COWBIRD.— The Cowbird was found everywhere, but the only immature birds were taken in the groves and in the woods along the streams, July 18 (well feathered) August 22 (nestlings).

53. **Xanthocephalus xanthocephalus.** YELLOW-HEADED BLACKBIRD.— One of the most abundant species in the region. A large series of specimens, representing every plumage, of this beautiful blackbird were secured. The nests were found only in colonies, and were placed in the rushes and sedges in the sloughs. A large colony at the east end of Elbow Lake consisted of hundreds of breeding pairs. Nestlings were found in this colony of July 16, but most of the young birds were well feathered and leaving the nests at this time.

54. **Agelaius phœniceus phœniceus.** RED-WINGED BLACKBIRD.— Like the preceding species the Red-winged Blackbird is very common, but the birds do not seem to range so far from the marshes, where they nest, and the nests are more widely distributed. Nestlings were found on July 3 and 5, but the young birds were leaving the nest at this time. In two nests the young birds were three and five in number.

55. **Sturnella neglecta.** WESTERN MEADOWLARK.— A common species in all of the prairie areas, meadows and cultivated fields. Well feathered immature birds were taken on July 19 and August 1 and 27.

56. **Icterus spurius.** ORCHARD ORIOLE.— The Orchard Oriole was only found in the willows that have been planted along the roads, but it undoubtedly occurs in the other wooded habitats. Four individuals were seen, one an immature male (well feathered) taken on August 3.

57. **Icterus galbula.** BALTIMORE ORIOLE.— Only observed in two upland groves and in low woods at Trumbull Lake. Two immature birds in downy plumage were taken on August 1, and another well feathered was noted on August 9.

58. **Quiscalus quiscula æneus.** BRONZED GRACKLE.— Noted in all of the wooded habitats, but most frequently in the upland groves. Immature birds were taken in a grove in Clay County, July 6 (well feathered), 7 (one in the down and one well feathered), and 11 (fully feathered).

59. **Astragalinus tristis tristis.** GOLDFINCH.— A common species, nesting in the groves but feeding to a considerable extent in the open habitats. A nest with four eggs was found on August 13.

60. **Plectrophenax nivalis nivalis.** SNOW BUNTING.— Two adult males and one adult female taken on February 24, 1909, near Ruthven, by Nels Hansen, are in the museum collection.

61. **Ammodramus savannarum bimaculatus.** WESTERN GRASSHOPPER SPARROW.— Only found on the upland prairie areas but very common in that habitat. Of the series secured, but one, a fully feathered male taken on August 19, is immature.

62. **Passerherbulus henslowi occidentalis.** WESTERN HENSLOW'S SPARROW.— The only individual of the species noted was taken by Ruthven in a grassy swale on rather high ground in Clay County, August 29.

63. **Melospiza melodia melodia.** SONG SPARROW.— Apparently far from common. The only specimens seen were two adult males in a marsh near Lost Island Lake, July 22, an adult male at the same place, August 7, another on the shore of Trumbull Lake, August 13, and a fully feathered immature female at Elk Lake, August 19.

64. **Melospiza georgiana.** SWAMP SPARROW.— Common throughout July and August about the sloughs, but not observed elsewhere. The only immature bird in the collection is a female taken on August 26.

65. **Passer domesticus.** ENGLISH SPARROW.— Common everywhere, nesting both in buildings and in trees in the groves.

66. **Zamelodia ludoviciana.** ROSE-BREASTED GROSBEAK.— Only found in two upland groves and in the woods about Lost Island Lake. Three of the four birds seen were in the last named habitat, and one, found July 26, is a nestling.

67. **Spiza americana.** DICKCISSEL.— Found in the grassland habitats, both on the hills and in the meadows; locally rather common. All of the specimens secured are adult.

68. **Petrochelidon lunifrons lunifrons.** CLIFF SWALLOW.— Common throughout the region, nesting under the eaves of barns and outbuildings.

69. **Hirundo erythrogastra.** BARN SWALLOW.— A common species, nesting on the rafters in barns. A nest with four partly feathered nestlings was found on July 11.

70. **Iridoprocne bicolor.** TREE SWALLOW.— Noted only about the grassland areas. A nest was found in a hole in the top of a fence post, July 3, and a well feathered immature male was taken on July 18.

71. **Riparia riparia.** BANK SWALLOW.— A colony was found nesting in a gravel bank near Lost Island Lake. In the latter part of August the birds were seen in numbers with other swallows about the swamps.

72. **Lanius ludovicianus migrans.** MIGRANT SHRIKE.— Frequently observed about the fields and pastures. Immature birds were taken on July 19 and 22.

73. **Vireosylva gilva gilva.** WARBLING VIREO.— An adult female of this species was found in the woods about Lost Island Lake, July 25, and a nestling was taken in the same locality on July 26. These were the only birds seen.

74. **Mniotilta varia.** BLACK AND WHITE WARBLER.— The only bird of this species noted, an adult male, was taken in a grove in Clay County, August 30.

75. **Dendroica æstiva æstiva.** YELLOW WARBLER.— Not uncommon, particularly about the groves and in the willows along the roads. An immature male in the collection was taken on July 24 and a nestling on July 18.

76. **Dendroica castanea.** BAY-BREASTED WARBLER.— A single bird of this species, an adult male, was taken by Ruthven in a grove in Clay County, July 4.

77. **Geothlypis trichas trichas**. MARYLAND YELLOW-THROAT.— Common about all of the marshes. An immature bird in the down was taken on July 23 and another, well feathered, on August 1. One bird was seen in an orchard about a mile from a marsh.

78. **Wilsonia pusilla pusilla.** WILSON'S WARBLER.— The only birds of this species observed were an immature male and two immature females (all fully feathered) in a grove in Clay County, August 28 and 30.

79. **Dumetella carolinensis.** CATBIRD.— The Catbird was seen a few times in the woods about the lakes.

80. **Toxostoma rufum.** BROWN THRASHER.— Only a few Thrashers were observed, and these were in the woods about the lakes. Two immature birds just ready to leave the nest were found at Elbow Lake, July 8.

81. **Troglodytes aëdon parkmani.** WESTERN HOUSE WREN.— Common in the groves and in the woods along the lakes and streams. Three birds in the fine series obtained are immature; they are a partly feathered male taken on July 17 and a nearly fully feathered male and female taken on July 24, all in groves.

82. **Cistothorus stellaris.** SHORT-BILLED MARSH WREN.— This wren was occasionally observed about the marshes but was found in numbers only in a small slough south of Elbow Lake. Only adults were noted.

83. **Telmatodytes palustris iliacus.** PRAIRIE MARSH WREN.— A very common species about all of the marshes in the region. Many nests were observed where the rushes and sedges were growing in the water. A nest with five unincubated eggs was found on July 30, and well feathered immature birds were taken on August 3.

84. **Penthestes atricapillus septentrionalis.** LONG-TAILED CHICKADEE.— An adult female secured by Ruthven in willows along a road, July 14, was the only one of this species observed.

85. **Planesticus migratorius migratorius.** ROBIN.— The Robin was observed in some numbers about the wooded habitats.

86. **Sialia sialis sialis.** BLUEBIRD.— The Bluebird was found both in the wooded and grassland habitats, but was most common in the latter, where it nests in fence posts. Three well feathered nestlings were taken in a pasture on August 6.

ADDITIONS TO "NOTES ON SOME SUMMER AND FALL BIRDS OF THE CROOKED LAKE REGION, CASS AND CROW WING COUNTIES, MINN."

BY ALBERT W. HONYWILL, JR.

UNDER the above title I gave a list which appeared in 'The Auk' for April, 1911, pp. 229 to 237. As the result of two more summers spent in the region mentioned I desire to add the following notes and list of eleven additional species.

The time covered was from July 29 to September 15, 1911, and from July 20 to September 6, 1912. During this time I made two trips of two days each, on August 18 and 19, 1911, and again on the 24th and 25th of the same month, to a part of the region which I had visited on only one previous occasion. I made three further trips to this region on July 29 and August 22 and 24, 1912. The observations made on these trips and likewise in the region previously described led me to add the following notes. Two years time has brought about several noticeable changes and no doubt the bird life of this region will undergo still further change as the country is opened up to farming. The advance in civilization is already making itself felt upon the bird life of this particular region and it is believed for this reason that these notes will prove of interest a few years hence.

The region above mentioned is located about two miles northeast from the head of Crooked Lake and contains two small shallow lakes and numerous sloughs. The first lake encountered on a walk from Crooked is known as Stake Lake and is the larger of the two mentioned. The name is derived from the fact that the course of an old lumber road, used during the winter season several years previous, was marked across the lake by several stakes, two of which still remain. This lake is perhaps a half mile in extent and is surrounded by a number of acres of meadow land which extend back from the water from a dozen to two or three hundred feet. During some years this is largely marsh land but the last two years were unusually dry. A walk around the lake revealed a Loon's nest only a few inches above the water and on a side of

the lake where the water was quite shallow. Pieces of egg shell remained in the nest. It was interesting to note that there was nothing in the vicinity of the nest which offered any concealment such as bushes or grass. A pair of old birds and two young occupied the lake and were undoubtedly the owners of the nest. There are practically no rocks along the shore so that it was probably for this reason that the Mallards would come out into the grass or even go up into the brush to sun themselves. I flushed a number from the edge of the brush which arose with quacks of alarm as I walked along. One bird was evidently moulting and was hardly able to make its escape. During 1912 the water was much lower both at Stake Lake and Ox Meadow. The lower water exposed rocks near the center of Stake Lake which were used by the Mallards in sunning themselves during the middle of the day.

The second lake, if it can be designated by such a name, is called Ox Meadow Lake. It is situated in the midst of a wild meadow and marsh land called by the natives Ox Meadow from the fact that several hundred head of oxen were formerly quartered there during the summer. These oxen were used in the winter for hauling logs but during the summer were allowed to run wild and feed on the luxuriant grass around Ox Meadow and Stake Lake.

Ox Meadow was teeming with bird life. As I walked out into sight of the meadow on my first trip I flushed a magnificent flock of Prairie Chickens. They arose from all sides, thirty-five in number, and after a short flight sailed off on stiffened wings until one by one they dropped into the tangled mass of hazel brush, briars and wild sun flowers a short distance from the meadow. At the waters edge stood a Bittern while ducks and grebes swam off at my approach but did not take flight.

On one occasion I spent over an hour lying in the tall grass near the waters edge watching the scene spread out before me. Pied-billed Grebes were numerous and would bob up and disappear among the lilies in a most interesting way. Further out I observed several families of Wood Ducks leisurely swimming along in single file. There were probably sixty to seventy birds in all while Mallards were even more numerous although they kept well towards the center of the lake. Occasionally a small band of Yellow-legs

would dart across the water, their white under parts flashing as they wheeled and turned. Nearer at hand two young Hooded Mergansers were feeding while overhead an occasional Swallow circled to and fro. As a finishing touch to this scene of wild beauty, teeming with bird life and activity, two deer appeared on the opposite shore. They stood with heads erect for several moments, intently listening, and then apparently satisfied that all was safe they commenced to slowly feed along the shore until something startled them and they dashed from sight.

Among the apparent changes which have taken place during the past two years should be mentioned a decrease in the number of Loons observed. This may possibly be due to the water level in the various lakes, particularly the smaller lakes and ponds, which in some cases are nearly dry. This undoubtedly has had some effect on the breeding of this bird but perhaps only locally. The Black Tern seems to be increasing largely in numbers each year while just the reverse is true in the case of the Great Blue Heron. This bird, formerly quite common, has decreased in numbers to such an extent that it was observed but once during the season of 1912. The Mallard is quite common for a region containing no wild rice. On August 22 a flock of over 250 birds was observed at Stake Lake. The Ruffed Grouse appears to be holding its own in numbers if indeed it is not increasing slightly while the Prairie Chicken is spreading its range rapidly with the increase of cultivated ground. The hawks are difficult of identification and there are undoubtedly others than those included in my first list which frequent this region. The Baltimore Oriole, which was with some uncertainty included in the previous list, has since been observed on several occasions in the vicinity of the camp. Among the Warblers there are undoubtedly several species which should be included in the list but their identification is uncertain. The fall migrants slip by quietly and in garbs confusingly similar which makes the work of adding to a local list doubly hard to a person denied the pleasure of witnessing the spring migration in the same region.

In the following list are included those species not mentioned in the previous list.

87. **Larus argentatus.** HERRING GULL.— Two Herring Gulls were seen on Crooked Lake September 12, 1911. They were feeding upon dead fish and we were able to approach quite close to them in a launch before fear overcame their desire for food and caused them to fly a short distance away. At our departure they immediately returned to the fish and resumed feeding.

88. **Larus franklini.** FRANKLIN'S GULL.— This bird was seen on September 9 and 11, 1911, flying over Crooked Lake. On the latter date it flew within about 25 feet of my boat which gave me an excellent opportunity to observe it.

89. **Tympanuchus americanus americanus.** PRAIRIE CHICKEN.— A flock of about 35 birds was seen near Ox Meadow on August 18 and 19. A smaller flock, probably some of the same birds, was flushed from the lumber road between Ox Meadow and Stake Lakes on August 24, 1911. Again in 1912 the birds were found plentifully at the same place. The Prairie Chicken appears to be increasing in this vicinity quite rapidly. Several birds were flushed from the open brush land a half mile north of the camp and also from the road leading from the head of Crooked Lake to Stake Lake. Two years ago about 40 acres of land were cleared and planted about a half mile southwest of the camp. In 1912 about a half acre was planted to buckwheat for the express purpose of coaxing in the Prairie Chickens. About 30 acres were also planted to wheat and oats. This abundant feed appeared to bring about the desired result as a small covey of Chickens was several times observed either in the fields or in the brush adjoining. As no shooting is allowed in this vicinity we hope to see a notable increase in the flock next year.

90. **Pediœcetes phasianellus phasianellus.** SHARP-TAILED GROUSE. — On August 19, 1911, an adult bird was flushed from the brush on an arm of higher ground between Ox Meadow and a swale to the northeast.

91. **Totanus flavipes.** LESSER YELLOW-LEGS.— Seen in small numbers on both Ox Meadow and Stake Lakes on August 18, 19, 24 and 25, 1911. Early in the morning of the 24th, as we sat by the fire in the front of the tent, a flock of three Yellow-legs and five Killdeer circled and alighted at the water's edge. Although we were not 20 feet away and made no attempt to be quiet or motionless, they appeared to be almost fearless and fed undisturbed. A few Yellow-legs were also observed in 1912 at the same place.

92. **Myiarchus crinitus.** CRESTED FLYCATCHER.— It was not uncommon to hear the characteristic call of this flycatcher from the depth of a small grove near the camp. The loud and long drawn "wheep" call note was often heard in August although at this time the Crested Flycatcher is generally supposed to remain quiet.

93. **Iridoprocne bicolor.** TREE SWALLOW.— On August 24 and 25, 1911, single Tree Swallows or flocks of four or five were seen over both Stake and Ox Meadow lakes. A few Cliff Swallows were seen at the same time and also on August 19 but at no time was either species common.

Tree Swallows were seen flying over Crooked Lake on September 5, 1911. In 1912 Tree Swallows were again observed upon several occasions, but never more than a few individuals were seen at one time.

94. **Riparia riparia.** BANK SWALLOW.— Although I knew that these birds occurred in this region because of the numerous nesting holes I had seen in several sand banks, it was not until the summer of 1912 that I actually saw the bird. Two pair nested in a small bank at the camp which had been formed by digging out sand for building purposes. The actual nesting bank was not over four feet high or eight feet long and it was interesting to note that the birds had started 22 different holes before they had succeeded in completing two that were satisfactory for nesting purposes. Some of these holes were only a few inches deep, others nearly a foot. In each case the birds had been discouraged because a large stone or a root obstructed further progress.

95. **Compsothlypis americana usneæ.** NORTHERN PARULA WARBLER.— I was shown the skin of an adult male that was found dead about the last of June, 1911.

96. **Dendroica coronata.** MYRTLE WARBLER.— Observed on August 18 and 26, 1911. In both cases only one bird was seen and that at a short distance from the camp.

97. **Certhia familiaris americana.** BROWN CREEPER.— This bird was inadvertently omitted from the original list. It was seen on August 28, 1908, and again on August 3 and 9, 1911.

SOME BINARY GENERIC NAMES.

BY GREGORY M. MATHEWS, F. R. S. E.

IN the Nov. Zool., Vol. XVII, 1910, pp. 492–503, I wrote: "On some necessary alterations in the nomenclature of birds," and there drew attention to the illegality of the "Brissonian genera" according to my interpretation of the International Code.

The second part, published six months later (Vol. XVIII, pp. 1–22, 1911), commented on the 20th Opinion rendered by the International Commission of Zoological Nomenclature which, dealing with the Gronovian genera, ruled that these were admissible though Gronow was not a binomialist. This ruling was based on the interpretation of the word "binary": the Commission concluded

that this was a word with a meaning not previously utilised to my knowledge, the actual wording being: "It is clear that Gronow's nomenclature is binary — that is, he names two units or things, genera and species." I clearly showed that this was quite a novel acceptance of the word "binary" and concluded "I therefore submit that the meaning given to the word 'binary' must be governed by the context, and that in view of Article 26 it can have none other than that used by me, i. e., absolutely equivalent to binomial."

Without any consideration of my arguments, however, Opinion No. 37 decided that the Brissonian genera were available *under the Code.* I made my last protest in this matter in the Nov. Zool., Vol. XVIII, pp. 452–5, 1912. At the Monaco Congress in March, 1913, the Opinions as a whole were approved by the Congress and consequently now rank equally with the Coded Laws. I therefore now utilise the Brissonian Genera in accordance with my oft-expressed desire for the attainment of uniformity, notwithstanding my personal disapproval of the action of the International Commission in concluding that the word binary was intended to admit the genera of non-binomial writers.

It seems impossible to think that the Commission could not have seen that the consequence would be the further admission of generic names commonly neglected. As far as I was able to judge the whole basis of our present nomenclatural system was binomiality and to undermine this system was a grievous fault.

In my nomenclatorial researches I examined as many books as possible and I noted some which though not binomial were certainly binary. These I ignored but it is no longer possible to do so. In this paper I will show the insecurity of some of our most common generic names through the admission of "binary" authors. I would here note an interesting confirmation of my meaning of the word binary as opposed to that of the International Commission. In the Essais de Zoologie Générale, published as long ago as 1841, Is. Geoffroy Saint Hilaire discussing the Linnean system of nomenclature, wrote p. 112 "La nomenclature binaire, appliquée à la désignation de tous les animaux et de toutes les plantes, est, de tous les progrès accomplis par Linné, celui dont l'importance a été le mieux comprise, et celui aussi dont l'invention lui a été le plus exclusivement attribuée. Ces deux expressions, *Nomenclature bi-*

naire et *Nomenclature linnéenne*, sont même devenues aujourd'hui des synonymes si parfaits qu'on les prend indifféremment l'une pour l'autre."

Anyone conversant with the literature surrounding the production of the present International Code must concede that my protests were well-founded. C. Davies Sherborn, when compiling his Index Animalium, the indispensable aid to the systematist, gave a Bibliography of all the books examined, carefully noting all those he rejected as non-binomial. Included in this List must be many that will call for acceptance as being binary and I herewith put on record one such that will interest American Ornithologists.

In 1791 a book was published at Philadelphia dealing with Travels in Carolina of W. Bartram. Numerous notes on the bird-life occur and a long list of birds occurring in Carolina and Florida is given. All the names have been rejected on account of the non-binomiality of the author. I do not intend to go into any detail regarding this work as Americans must be much more familiar with it than I am and I should probably make many mistakes. New generic names occur which would come under the category of binary though the author was not binomial. All I have noted in this edition, however, seem to come under the class "*nomina nuda*."

In 1793 however a German translation was published in Berlin: this was edited by E. A. W. Zimmermann, who made explanatory notes. There is little doubt that the editor was a binomialist, but that does not much concern us.

The fact remains that in many cases the Bartramian names are accompanied by Zimmermann's identification and some quaint complications occur.

On p. 151 a footnote by Z. identifies a bird as *Linaria ciris*.

On pp. 276–301 notes and the Bartramian list of birds occur.

Regulus atrofuscus minor appears in the text as a Bartramian name, followed however on p. 277 by "den Blauvogel (*Motacilla sialis. Rubecula americana.*)"

On p. 284 appears:

"*Merula marilandica.* The summer red bird. Die Maryländische Amsel. (Seligm. Cat. III. T. 12.)" and

Lucar (dies Wort ist mir unbekannt, vielleicht ein Druckfehler) *lividus.* The cat bird or chicken bird. (*Muscicapa carolinensis* Linn. Der Fliegensänger aus Karolina.)"

On p. 286 is written:

"*Linaria ciris.* The painted finch or nonpareil. Der gemahlte Fink (*Emberiza ciris* L. Seligm. Cat 7).

Linaria cyanea L. The blue linnet. Der blaue Hänfling. (Seligm. Cat. II. Tab. 90.)"

"Calandra pratensis. The May bird. (Kaum darf ich diesen Vogel für die Calandra halten, da die Lerchen schon oben vorgekommen sind; doch ist freilich die Calandra ein Nordamerikanischer Vogel)."

We have on p. 287:

"*Motacilla sialis* Linn. The blue bird. Der Blauvogel. (Seligm. Cat. *Rubecula americana caerulea.* II. T. 94.)

Motacilla domestica (*regulus rufus.*) The house wren. Der Zaunkönig. (*Motacilla regulus* Linn.)

Motacilla palustris (*regulus minor*). The marsh wren. Der Sumpfzaunkönig.

Motacilla Caroliniana (*regulus magnus*). The great wren of Carolina. Der grosse Zaunkönig. (Der Leib dunkelbraun, Brust und Kehle falb. *Regulus major, subtus ex rufescente flavus* Gmel. Linn. Der grossere Zaunkönig von Louisiana. Buffon.)

Regulus griseus. The little bluish wren. Der kleine bläuliche Zaunkönig.

Regulus cristatus. The golden crown wren. Der Zaunkönig mit goldener Kappe. (*Troglodytes* Linn.)

Regulus cristatus alter. The golden crown wren. Der Zaunkönig mit rother Haube. (The ruby crowned wren Edwards. Seligm. Cat. III. T. 90. *Motacilla calendula* Linn.)

Regulus peregrinus, gutture flavo. The olive-coloured yellow-throated wren. Der Zaunkönig mit gelber Kehle. (Vielleicht der *Figuier de la Caroline* Buffon).

Ruticilla americana. The redstart. Der Amerikanische Rothschwanz. (*Mot. phönicurus?*)

Luscinia seu philomela americana. The yellow-hooded titmouse. Die Amerikanische Nachtigall. Catesby."

No more new generic names occur until p. 291:

Morinella americana. The turnstone or dotrel. Der Morinell oder Strandreiher (*Tringa morinella* Linn. Seligm. Catesby V. T. 36.)

On p. 293 we have

"*Petrella pintada.* The pintado bird. Der weiss und schwarz gefleckte Petrel (oder Sturmvogel). (Seligm. Cat. IV. T. 77. *Procellaria capensis* Linn. Pintado des Dampier.)"

A consideration of the preceding extracts suggests the discussion of the generic names, *Linaria, Regulus, Rubecula, Merula, Lucar, Calandra, Ruticilla, Luscinia* seu *Philomela, Morinella* and *Petrella.*

Before proceeding further reference to Sherborn's Index Animalium given prior introductions of some of these names, as,

Linaria, G. Edwards in M. Catesby, Carol. I 1771, 45.

Rubicula vel Rubecula. id ib 47.

Merula Moehring Geslach Vogel (Nozem & Vosm ed.) 1758, 8 & 27.

Luscinia id ib 2 & 27.

The other names are given, when at all, as of a later introduction, as:

Regulus Bartram in Barton 1799 & Lucar Barton 1799.

The quotations ex Moehring (Nozem. & Vosm. ed.) are now ruled out so that probably the names there noted may still appear earlier than the present instance. There can however be little doubt that these binary generic names will replace more familiar binomially introduced ones, commonly in use.

Thus *Linaria* in the present case is earlier and equivalent to *Passerina* Vieillot 1816 as now used in the A. O. U. Check-List 3rd Ed. p. 285, 1910. The introduction of the same generic name given by Sherborn as above refers to the same. Of course the acceptance of binary generic names necessitates the re-examination of the editions of Catesby's Carolina, in addition to the Edwards one above noted, and the Seligmann edition quoted by Zimmermann in the extracts here given. What the result will be I cannot foretell.

Regulus would seem to preserve the traditional use whenever its introduction may date from.

Rubecula would replace *Sialia* Swainson 1827 of the A. O. U. Check-List, 3rd Edition, p. 366, 1910, whether it dates from Zimmermann or from Edwards 1771.

Merula must be dealt with as it is based on Selig. Cat. III. T. 12. and is thereby recognisable.

Lucar must again come into use in place of *Dumetella* S. D. W. 1837, as that name is used in the A. O. U. Check-List, 3rd. Ed., p. 1910.

Calandra at this place I consider a nomen nudum.

Ruticilla might be also thus construed but I believe it comes into consideration from another binary source at somewhere near this date.

Luscinia might be again classed as a nomen nudum but the reference to "Die Amerikanische Nachtigall Catesby" suggested its introduction in some of the editions of Catesby's work.

Morinella of course falls as a synonym of *Arenaria* Brisson 1760.

Petrella, however, appears to displace *Daption*, Stephens 1826 as used in the A. O. U. Check-List, 3rd Ed., p. 51, 1910.

This last name is the only one that directly concerns my own studies in ornithology, namely that of Australia, and in order to make sure of this matter I forwarded the book here noted to Dr. C. W. Richmond, Secretary of the Ornithological Committee on Nomenclature, desiring his opinion upon my conclusions. He has written me, that, after conferring with Dr. L. Stejneger, one of the members of the International Commission on Nomenclature, the only conclusion possible was that these generic names were duly proposed and regularly introduced by a writer who was binary though not binomial. He also desired me to note that this edition of Bartram's Travels also appeared as Vol. X of the Magazin von merkwürdigen neuen Reisebeschreibungen.

I would here state that the above notes are merely fragmentary in order to draw attention to the work mentioned and that further detailed investigation of this work by one familiar with American Ornithology might reveal some name I have overlooked.

My own researches lead me to suggest that the apparently ill-advised admission of "binary" generic names will lead to such an upsetting of names that the only means of escape will be the recognition of a List of Nomina Conservanda: such a result has been recently scoffed at by good workers, but these were undoubtedly unaware of the many binary writers to be taken into consideration, the present instance being only one out of many.

The rejection of "binary" writers, as opposed to binomial ones, would have obviated discussion and made more stable our present nomenclature.

THIRTY-FIRST STATED MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION.

THE Thirty-first Stated Meeting of the American Ornithologists' Union convened in New York City, Monday evening, November 10th, 1913. The business meeting was held at the Explorers' Club, 345 Amsterdam Avenue, and the public sessions, commencing Tuesday, November 11th, and lasting three days, were held at the American Museum of Natural History.

BUSINESS SESSION. The meeting was called to order by the President, Dr. Frank M. Chapman. Twenty-seven Fellows were present. The Secretary's report gave the membership of the Union at the opening of the present Stated Meeting as 992, constituted as follows: Fellows, 49; Retired Fellows, 2; Honorary Fellows, 15; Corresponding Fellows, 57; Members, 77; Associates, 792.

During the year the Union lost seventy-eight members, fourteen by death, twenty-nine by resignation, and thirty-five for nonpayment of dues. The deceased members include two Honorary Fellows, one Corresponding Fellow, one Member, and ten Associates, as follows:

Dr. Philip Lutley Sclater, one of the original Honorary Fellows, who died June 27th, 1913, at the age of 83 years;[1] Prof. Alfred Russel Wallace, an original Honorary Fellow, who died in London, November 7th, 1913,[2] in his 91st year; Prof. Robert Collett, a Corresponding Fellow, who died at Christiana, Norway, January 27th, 1913, in his 71st year;[3] Herbert Brown, a Member, who died in Tuscon, Arizona, May 12th, 1913, aged 65 years;[4] and the following Associates: Miss Louise Howe, who died September 13th, 1912; Mrs. Wm. H. Upham, who died November 29th, 1912; Chester A. Reed, who died at Worcester, Mass., December 16th, 1912, aged 36 years[5]; Mrs. Susan L. Davis, who died February

[1] For an obituary notice, see Auk, XXX, p. 621; also Memorial Address in the present number.

[2] For an obituary notice see 'Notes and News' of this number.

[3] For an obituary notice, see Auk, XXX, p. 318.

[4] For an obituary notice, see Auk, XXX, p. 472.

[5] For an obituary notice, see Auk, XXX, p. 319.

13th, 1913; Florence A. Howe, who died July 1st, 1913; William H. Hill, who died October, 1913; Fred B. Spalding, who died at Lancaster, N. H., October 22d, 1913;[1] Jefferson Butler, who died in Detroit, Michigan, October 23d, 1913, aged 45 years; Henry Hales, who died November 6th, 1913; and Miss Lucy H. Baird, who died June 19th, 1913.

The report of the Treasurer showed the finances of the Union to be in a satisfactory condition.

All of the officers were re-elected as follows: Frank M. Chapman, President; A. K. Fisher and Henry W. Henshaw, Vice-Presidents; John H. Sage, Secretary; Jonathan Dwight, Jr., Treasurer; Ruthven Deane, William Dutcher, F. A. Lucas, Chas. W. Richmond, Thomas S. Roberts, Witmer Stone and Wilfred H. Osgood, members of the Council.

Waldo Lee McAtee, Washington, D. C., Joseph Mailliard, San Francisco, Cal., and Waldron De Witt Miller, of New York City, were elected Fellows; Hon. Lionel Walter Rothschild, of Tring, England, was elected an Honorary Fellow; Sergius N. Alphéraky, St. Petersburg, Russia, and Edward Daniel Van Oort, of Leyden, Holland, were elected Corresponding Fellows; Dr. Arthur A. Allen, Ithaca, N. Y., Dr. Rudolph M. Anderson, New York City, Dr. W. H. Bergtold, Denver, Colo., W. Lee Chambers, Eagle Rock, Cal., and George Willet, Los Angeles, Cal., were elected to the class of Members, and the following one hundred and forty-two persons were elected Associates:

Carl E. Akeley, New York City.
Miss Mary Pierson Allen, Hackettstown, N. J.
John S. Ames, North Easton, Mass.
Mrs. S. Reed Anthony, Boston, Mass.
Dr. B. H. Bailey, Cedar Rapids, Iowa.
David Ball, New York City.
Edwin B. Bartram, Wayne, Pa.
George Batten, Jr., Montclair, N. J.
William M. Bartlett, Allston, Mass.
Rev. George Bennett, Iowa City, Iowa.
Mrs. F. T. Bicknell, Los Angeles, Calif.
Dr. Lyman Fisher Bigelow, Norwood, Mass.
Harry C. Bigglestone, Sioux City, Iowa.
Miss Cora Blackledge, Beaver, Pa.
Wesley W. Blair, Newtonville, Mass.

[1] For an obituary notice see 'Notes and News' of this number.

Prof. Donaldson Bodine, Crawfordsville, Ind.
Thomas L. Bourne, Hamburg, N. Y.
James Higginson Bowditch, Boston, Mass.
G. S. Britten, Syracuse, N. Y.
Miss Martha W. Brooks, Petersham, Mass.
Mrs. Jonathan Brown, Jr., Boston, Mass.
Harold Child Bryant, Berkeley, Calif.
Thomas D. Burleigh, Pittsburg, Pa.
Miss Clara D. Campbell, Brookline, Mass.
H. W. Carriger, Oakland, Calif.
Clarence H. Clark, Lubec, Me.
H. Walton Clark, Fairport, Iowa.
Ethan Allen Cleasby, Portage, Wisc.
Miss Anna E. Cobb, Providence, R. I.
Herbert L. Coggins, San Francisco, Calif.
S. Bayard Colgate, Orange, N. J.
Frederic M. Crehore, Boston, Mass.
Miss Viola E. Crittenden, Beverly, Mass.
Delos E. Culver, Addingham, Pa.
Benjamin H. Currier, Boston, Mass.
J. H. Davenport, Houston, Texas.
R. H. Dean, St. Louis, Mo.
Daniel Whitman Deane, Fairhaven, Mass.
Miss Elizabeth Downhour, Indianapolis, Ind.
Rupert A. Emmons, Washington, D. C.
Richard Erkskine, Wenonah, N. J.
William Floyd, New York City.
John S. Folk, Suffolk, Va.
Nathaniel A. Francis, Brookline, Mass.
W. D. Funkhouser, Ithaca, N. Y.
Mrs. W. W. George, Parkersburg, W. Va.
Miss Elizabeth F. Gray, Dedham, Mass.
Miss Caroline S. Greene, Cambridge, Mass.
Gilbert Hovey Grosvenor, Washington, D. C.
Mrs. W. K. Harrington, New York City.
William S. Haskell, New York City.
Prof. Francis H. Herrick, Cleveland, Ohio.
Newbold Lawrence Herrick, Cedarhurst, N. Y.
Mrs. J. Emory Hoar, Brookline, Mass.
Paul Griswold Howes, Stamford, Conn.
Laurence M. Huey, San Diego, Calif.
Edwin D. Hull, Chicago, Ill.
Norman James, Baltimore, Md.
Miss Flora Amy Jarves, Kingston Hill, R. I.
Richard D. Jennings, East Orange, N. J.
J. M. Johnson, Brooklyn, N. Y.

Henry Justice, Devon, Pa.
Ralph T. Kellogg, Silver City, New Mexico.
Duane E. Kent, Rutland, Vt.
Wilfred L. Kihn, Brooklyn, N. Y.
Prof. P. E. Kretzman, St. Paul, Minn.
Stanley Vaughan La Dow, New York City.
Charlotte E. Lee, New York City.
L. Alva Lewis, Portland, Oregon.
George Herbert Lings, South Nyack, N. Y.
Luther Little, 2d, Los Angeles, Calif.
Rubert J. Longstreet, De Land, Fla.
Miss Marion B. Loring, Dedham, Mass.
F. B. Lund, M. D., Boston, Mass.
Herschel James McCallum, Pittsburg, Pa.
Miss Harriette Frances McIntyre, Newton, Mass.
Hon. George Payne McLean, Simsbury, Conn.
Walt F. McMahon, Roxbury, Mass.
James C. Maples, Port Chester, N. Y.
Vinton W. Mason, Cambridge, Mass.
Luke B. Martin, Clearwater, Florida.
George Henry Mengel, Reading, Pa.
Dayton Eugene Merrill, State College, New Mexico.
Zeno Payne Metcalf, West Raleigh, N. C.
George Ralph Meyer, Fort McKinley, Me.
Miss Heloise Meyer, Lenox, Mass.
Leo Dwight Miner, Washington, D. C.
Horace H. Mitchell, Saskatchewan, Canada.
George M. Mischke, Brooklyn, N. Y.
Miss Julia Eleanor Moody, Wellesley, Mass.
Chas. S. Moore, San Diego, Calif.
Albert Sidney Morgan, Winfield, W. Va.
Miss Eliza A. Morse, Worcester, Mass.
Frederick S. Moseley, Boston, Mass.
James Alexander Munro, Okanagan Landing, B. C.
Mrs. Lucius Nims, Greenfield, Mass.
Gladwin Kingsley Noble, Yonkers, N. Y.
Geoffrey Maurice O'Connell, Ithaca, N. Y.
Horace C. Ohl, Los Banos, Calif.
Miss Elizabeth Irving Ordway, Winchester, Mass.
Azel A. Packard, Springfield, Mass.
Chas. A. Philhower, Chatham, N. J.
Mrs. Dan Fellows Platt, Engelwood, N. J.
E. F. Pope., Colmesniel, Texas.
Mrs. S. W. Powell, West Becket, Mass.
Ligon Price, Dumnore, W. Va.
Wilson Blaine Rector, Belington, W. Va.

Miss Mary Henrietta Renshaw, New Orleans, La.
Ward Jennings Rice, Roachdale, Ind.
Mrs. C. G. Richards, Lancaster, Pa.
Walton Ricketson, New Bedford, Mass.
James O. Roberts, Utica, N. Y.
William Allen Robinson, Vineyard Haven, Mass.
Harold Goddard Rugg, Hanover, N. H.
Arlie William Schorger, Madison, Wisc.
William G. Scott, Winnipeg, Manitoba, Canada.
Louis Agassiz Shaw, Beverly Farms, Mass.
Arthur L. Souther, Stoneham, Mass.
Miss Ethel Downing Spears, New York, N. Y.
Delmar Charles Speenburgh, New York City.
Miss Mary T. Spooner, Boston, Mass.
E. Alfred Steck, Philadelphia, Pa.
George H. Stuart, Philadelphia, Pa.
Arthur W. Sugden, Hartford, Conn.
S. S. S. Stansell, Manly, Alberta.
George Cushman Stearns, Dedham, Mass.
Herman Foster Stone, Lawrence, N. Y.
Lionel Edward Taylor, Bankhead Ranche, Kelowna, B. C.
Albert Joseph Tourtellotte, Westboro, Mass.
William Henry Triscot, Sonora, Sutton Co., Texas.
William Y. Wadleigh, Boston, Mass.
Frederic Collin Walcott, New York City.
Alexander Walker, Mulino, Oregon.
Chas. R. Wallace, Delaware, Ohio.
Willis G. Warner, Canfield, Ohio.
Francis M. Weston, Jr., Charleston, S. C.
D. V. Wharrum, Anstinburg, Ohio.
Dr. James C. White, Boston, Mass.
Miss Helen Willard, Brookline, Mass.
Miss Mary Alice Willcox, Ph. D., Malden, Mass.
DeWitt C. Wing, Chicago, Ill.
Wallace Park Young, Toronto, Canada.

Dr. A. K. Fisher, E. W. Nelson and Dr. Chas. W. Richmond were re-appointed 'Committee on Bird Protection.'

PUBLIC SESSIONS. *First Day.* The meeting was called to order by the President, Dr. Chapman. An address of welcome was made by Prof. Henry Fairchild Osborn on behalf of the President, Trustees and Scientific Staff of the American Museum of Natural History.

The papers read during the morning session were as follows:

'A Study of the Feeding of Nestlings,' by Prof. Lynds Jones. Remarks followed by Dr. Merriam and Mr. Batchelder.

'The Work of a Village Bird Club,' by Ernest Harold Baynes. Illustrated by lantern slides. Remarks followed by Messrs. Bowdish, Saunders, Bond, Fuertes, Seton, Lord and Smith, Miss Moore, and Drs. Bishop, Fisher and Merriam.

'Experiments in Feeding Hummingbirds during Seven Summers,' by Miss Althea R. Sherman.

'A Plea for the Conservation of the Eider,' by Dr. Chas. W. Townsend. Remarks followed by Messrs. Arnold, Cleaves, and Bent.

It was voted to send copies of Dr. Townsend's paper to the Governor General of Newfoundland, and the Lieutenant Governor of the Province of Quebec, with the recommendation that proper measures be taken for the protection of the Eider on the Labrador Coast, thus preventing its extinction.

'In Memoriam — Philip Lutley Sclater,' by Dr. Daniel Giraud Elliot.

The following papers, all illustrated by lantern slides, were presented at the afternoon session.

'The Problem of Gliding Gulls,' by William Palmer. Remarks followed by Messrs. Bond, Saunders, Forbush, and the author.

'Some Observations on the Nesting of the Pied-billed Grebe,' by Dr. Arthur A. Allen. Remarks followed by Messrs. Seton and Job.

'Birds of the Bogota Region of Colombia,' by Dr. Frank M. Chapman.

In the evening an informal reception was held in the ornithological laboratories of the American Museum of Natural History, tendered to members of the A. O. U., by the Board of Trustees and Officers of the Museum.

Second Day. The meeting was called to order by President Chapman.

The papers of the morning session were:

'Some Migration Phenomena,' by Prof. Lynds Jones. Remarks followed by Messrs. Forbush, Saunders and Baily, and Dr. Arthur A. Allen.

'Bird Groups at the Field Museum of Natural History, Chicago,

Ill., by Wilfred H. Osgood. Illustrated by lantern slides. Remarks followed by Dr. Palmer, Mr. Bent and the Chair.

'Persuading the Robins to Nest near Our Homes,' by Mrs. E. O. Marshall.

'Alexander Wilson, 1766–1813, and some Wilsoniana,' by Dr. Witmer Stone. Remarks followed by Messrs. Deane and Forbush.

'The Present Status of Wild Swans in Montana,' by E. S. Cameron. In the absence of the author it was read in part by A. C. Bent.

'A Forgotten Plumage Character of the American Scoter,' by Dr. Jonathan Dwight, Jr. Remarks followed by Messrs. Fuertes and Palmer, Miss Moore, and Dr. Stone.

'Bird Banding Activities; Season 1913,' by Howard H. Cleaves. Illustrated by lantern slides. Remarks followed by Messrs. Job and Fuertes, Dr. Palmer, and the author.

The following papers, all illustrated by lantern slides, were presented at the afternoon session:

'Wild Fowl Studies in Northern Manitoba,' by Herbert K. Job.

'The Musical Method *versus* the Syllabic Method of Recording Bird Songs,' by Robert Thomas Moore. Remarks followed by Messrs. Saunders, Coale, Murphy, Cleaves, and the Chair.

'Crossing the Andes of Peru,' by Wilfred H. Osgood.

In the evening the members of the Union, and their friends, met at dinner at the Hotel Endicott.

Third Day. The meeting was called to order by President Chapman. The papers of the session were:

'Some Ornithological Aspects of the Federal Migratory Bird Law,' by Dr. T. S. Palmer. Discussion followed by Wm. S. Haskell, Counsel of the American Game Protective Association, regarding the constitutionality of the bill.

'Bird Studies on James Bay,' by W. E. Clyde Todd.

'The Present Condition of the Aviary, of the New York Zoölogical Society,' by C. William Beebe.

'Birds of the South Atlantic,' by Robert Cushman Murphy. Illustrated by lantern slides.

The following papers, in the absence of their authors, were read by title:

'Notes on the Nesting Habits of the Northern Violet-green

Swallow (*Tachycineta thalassina lepida*), at Seattle, Washington,' by S. F. Rathbun.

'Notes on Nighthawks,' by Harry C. Oberholser.

Resolutions were adopted thanking the President and Trustees of the American Museum of Natural History for a place of meeting, and for other courtesies tendered to the Union; to the Linnæan Society of New York for generous hospitalities extended to the Union during the Thirty-first Stated Meeting; to the Executive Committee of the New York Zoölogical Society for their polite invitation to visit the Zoölogical Park and the Aquarium of the Society; and to Robert W. Priest, of the Gaumont Co., Limited, of London, for his courtesy in allowing, a special exhibition at the Thursday afternoon session, of the motion pictures of antarctic life taken by Herbert G. Ponting, F. R. G. S., the official photographer of the late British Antarctic Expedition under Capt. Scott.

On Friday, November 14th, upon invitation of the New York Zoölogical Society, many members of the Union visited the Aquarium and the New York Zoölogical Park. They were received by Director Townsend and Curator Beebe and entertained at luncheon at the Park.

The registered attendance of members was unusually large, and the number of new members elected has been exceeded but once since the foundation of the Union.

The next meeting of the Union will be held in Washington, D. C., the date to be determined later.[1]

JOHN H. SAGE,
Secretary.

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[1] See 'Notes and News' of this number for date.

GENERAL NOTES.

Brown Pelican Regular off North Carolina.— The Brown Pelican (*Pelecanus occidentalis*) has heretofore been considered casual as far north as North Carolina.

Mr. Russell J. Coles, a leading American field ichthyologist, to whom we are indebted for our knowledge of the occurrence of several southern fishes at Cape Lookout, tells me that he regularly sees one or more small flocks of this bird at that Cape about the first of August. As there is little chance of error in the identification of so striking a species, I accept the record without question.

I quote from a letter from Mr. Coles, in which he says of the Brown Pelican:

"During no summer have I observed more than a dozen until on Aug. 6, 1913, I saw 5 flocks of them, the largest containing 13 and the smallest 3, making a total of 41. No flock was in sight of another flock, yet they all followed in approximately the same track, first appearing coming in from the Northeast,. . . . they would light on the water near the point of Cape Lookout and after a short rest continue their flight without stopping to fish. None of the flocks followed the shoreline to the southwest, but all flew directly south." — JOHN TREADWELL NICHOLS, *American Museum of Natural History, New York City.*

Recovery of a Banded Pintail Duck.— Mr. Jefferson C. Wenck of New Orleans informs me that one of the guides at the Delta Duck Club killed a female Pintail at Cubit's Gap, near the mouth of the Mississippi River, in December 1912, that had a band on the right leg, marked 186A. It will be of interest to know where this bird was tagged.— A. K. FISHER, *U. S. Biological Survey, Washington, D. C.*

American Egret (*Herodias egretta*) **at Martha's Vineyard, Mass.**— On July 22, 1913, I was attracted by the sight of an American Egret in the Black-Crowned Night Heronry at Squibnocket Pond, Martha's Vineyard. This wanderer from the south seemed to live in perfect harmony with his cousins. The bird remained in the colony during my entire week's stay. At times he would circle with the immature herons a few rods above my head; again he would sail leisurely out to the edge of the pond and stand motionless as if awaiting an opportunity to seize some finny loiterer. But not once did I notice any quarrelling or wrangling between the egret and his less ornate relatives.— G. KINGSLEY NOBLE, *Cambridge, Mass.*

The Willet in Central New York.— On August 20, 1913, I observed two large shore birds on the beach at the east end of Oneida Lake in the town of Verona, N. Y. From a distance I took them to be Greater Yellow-

legs, but on the 25th, two birds, undoubtedly these same two came much nearer and were identified as Willets (*Catoptrophorus semipalmatus semipalmatus*.) They were very tame, permitting approach within less than one hundred feet, when their marked plumage was very much in evidence. My two sons and myself watched them for probably an hour with our naked eyes and also with the field glasses, drew a diagram of their markings and wrote a description from life. We tried to take photographs but in this we failed and pressing for a nearer view, finally caused the birds to move away. We saw them again the next day but that was the last of them. Twenty-five years' observation on this beach has never shown me one before and I believe them to be very rare here.— EGBERT BAGG, *Utica, N.Y.*

Killdeer Plover at Cambridge, Mass.— On November 15, 1913, during the Harvard-Yale freshman football game, two Killdeer Plover (*Oxyechus vociferus*) alighted on the field while the game was in progress. It was during the third period of the game that the plover, calling shrilly, flew over the crowd. Several of the students whistled in reply. The birds circled around for a moment, and then alighted in the very middle of the field, — not forty yards away from the struggling players. Hardly had the birds folded their wings, when the Harvard stand burst out cheering for their team; this was too much for the plover and calling once or twice, they flew up and away.

This incident is most singular, not only because of the unnatural behavior on the part of the plover, but because Killdeer are extremely rare migrants in the Cambridge region.— G. KINGSLEY NOBLE, *Cambridge, Mass.*

Turkey Vulture (*Cathartes aura septentrionalis*) **at Martha's Vineyard, Mass.**— On July 25, 1913, I watched an immature Turkey Vulture on the west bank of Squibnocket Pond. The bird was evidently very much interested in something below him on the shore. After hovering and circling for a short time, he alighted on the ground behind some bayberry bushes. Upon showing my head above the shrubbery, the vulture swept majestically away; and, followed by a pestering Kingbird, soon disappeared into the blue sky.— G. KINGSLEY NOBLE, *Cambridge, Mass.*

Doryfera vs. Hemistephania.— In his Birds of North and Middle America, Part V, page 342, Ridgway, following the British Museum Catalogue (Salvin, 1892, p. 38) and the Hand-List (1900), uses *Hemistephania* Reichenbach, 1854, as the generic name of the Lance-billed Hummingbirds, rejecting *Doryfera* Gould, 1847, because of the prior *Doryphora* Illiger, 1809. Inasmuch as the second element of these names, though of the same signification, is from a different language and the rules of American Ornithologists' Union Code do not allow the rejection or emendation of a hybrid name, there seems to be no reason why *Doryfera* should not be employed. *Doryfera* was used by Hartert in the Tierreich

(1900, p. 10) and in Journal für Ornithologie (1900, p. 358) he defends its use.— W. DEW. MILLER, *American Museum of Natural History, New York City.*

Phœbe (*Sayornis phœbe*) **in Colorado.**— Whilst looking through some of my Colorado birds preparatory to sending them to the British Museum (Nat. Hist.) London — I was pleased to find a male example of the above bird taken in Pueblo Co., Colorado on April 5, 1896. So far as I am aware this is the second occurrence of this species in the State.— WILLOUGHBY P. LOWE, *Throwleigh, Okehampton, England.*

The Fox Sparrow in Central Park, New York City, in August.— On the afternoon of August 9, with the temperature at 85°, I was in Central Park looking for early migrating warblers. As I was going along a path bordered by rhododendron shrubbery, I noticed a fair-sized bird hopping along the edge of the path a few yards in front of me, scratching in the dead leaves for food. A long look through binoculars proved it to be a Fox Sparrow (*Passerella iliaca iliaca*) with somewhat worn plumage, although the coloring was very rich. The bird appeared thoroughly miserable and was obviously suffering from the heat. So listless was it, that rather than move away, it permitted a very near approach, finally taking wing with a feeble " cheep." This effort seemed to exhaust what little energy it had left, as I found it sulking at the base of a bush, and it actually permitted me to part the upper branches of the bush and peer down at it with my face not more than five feet away. I stared at it some time before it finally moved off once more, and I followed it about for some ten minutes longer, in no case being far enough away to use binoculars. I cannot say whether it was a ' left over ' from the last season or a migrant. The Fox Sparrow does not arrive in Central Park much before October 15 as a rule. The bird was not seen again, though I was in that part of the Park almost every day until the end of August.— LUDLOW GRISCOM, *New York City.*

An Abnormal Rose-breasted Grosbeak.— I have a female *Zamelodia ludoviciana* which I took on June 7, 1894, at Sand Lake, Parry Sound District, Ontario, and which closely resembles one described by Mr. Robert Barbour (Auk, 1913, page 435). In my bird the under parts are grayish white, the streaks are few, narrow and confined to the sides; the breast has a rather faint patch of deep chrome yellow which follows in general outline that of the adult male; the back is much lighter than is usual in the normal female, the feathers being edged with gray instead of brown which brings into contrast the dark centers of both the scapular and back feathers, the rump and upper tail coverts are olive gray; the axillars and under wing coverts are normal in color but a few of the latter have rose colored streaks which though very fine are more pronounced than usual. The bird was sexed and I think correctly by the late Mr. Geo. E. Atkinson.— J. H. FLEMING, *Toronto, Ontario.*

Two Prothonotary Warblers in Massachusetts.— I wish to report the presence of a Prothonotary Warbler (*Protonotaria citrea*) in Ipswich, Mass., on Sept. 13, 1913. The bird — a male, I judged, from the brilliancy of its plumage — was associated with a flock of Chickadees near the border of a low-lying, rather moist wood and attracted my attention by a loud, sharp call-note not unlike that of the Water-Thrush.

This is the first record of the Prothonotary Warbler for Essex County, Mass., and I find in the literature the mention of but twelve birds seen or taken in the State.

In this connection I take pleasure in adding the record of a Prothonotary Warbler seen in Arlington, Mass., by Miss Mary E. Hadley on May 21 and 22, 1912. This bird appeared with a heavy flight of migrant warblers.

It sang repeatedly a song suggesting a Water-Thrush and often, alighting on fence-posts, peered about them as if in search of a nesting site.— WINSOR M. TYLER, *Lexington, Mass.*

Tennessee Warbler (*Vermivora peregrina*) **in Massachusetts in Autumn.**— As the Tennessee Warbler (*Vermivora peregrina*) occurs so rarely during the fall in Massachusetts I wish to record the following instances of its occurrence at Harvard, Mass., that have come under my observation this fall and last.

September 9, 1912 a young female shot.
September 17, 1912 an adult female shot.
September 14, 1913 a young female shot.

All these birds are now in my collection.

In addition to these three definite records may be added that of a bird seen in company with the one shot on September 17, 1912; two seen September 9, 1913, and two seen with the bird secured on September 14, 1913. — JAMES L. PETERS, *Harvard, Mass.*

Mourning Warbler (*Oporornis philadelphia*) **in Florida.**— While visiting the Cerion plantations in the spring of 1913, on the Florida Keys, I had occasion to note the birds seen on and about the various islands between Miami and the Tortugas, and I have sent to Dr. Alfred G. Mayer, Director of the Marine Biological Laboratory of the Carnegie Institution, a short sketch enumerating the birds observed on the various keys, which will be published in the forthcoming Year Book of the Carnegie Institution. I have also handed a copy of this manuscript to the Biological Survey, believing the notes therein would be of interest on account of the information bearing upon bird migration.

Prof. W. W. Cooke informs me that in this list I have made a new record for Florida, namely, the Mourning Warbler. This, a Redstart, a Blackpoll Warbler, a Florida Yellow-throat, a Water-Thrush, and a Black-throated Blue Warbler, were seen on May 8 drinking from the scanty drippings caused by a slight leak in the water tank at the lighthouse on Sands Key, off Miami.— PAUL BARTSCH, *U. S. National Museum, Washington, D. C.*

Hooded Warbler at Boston, Mass.— On October 2, in walking around the Boston Public Garden looking for migratory birds, as is my custom, I met a friend who told me she had just seen a " strange little warbler with a black bib and cap which were connected by a band on the side of the head," but she had lost sight of him. We searched for him but could not find him.

The next day I met her again and we found the bird in the same location as the day before and were sure that it was a Hooded Warbler (*Wilsonia mitrata*.) While we were standing there Mr. E. H. Forbush passed through the garden. I gave him my field glasses that he might see the bird and he confirmed our identification.

The little stranger did not seem to be a bird of the tree tops as at no time did I see him more than two thirds up in the trees but his favorite place was in the lower branches flitting in and out with an occasional drop to the flower beds below. He was in full plumage and easy to find as the graceful opening and closing of his tail distinguished him at once.

The maple trees where he made his stay are on the edge of a path where people are passing to and fro all day long, yet he paid no attention to them and kept on with his hunt for food. My friend heard him one morning give his clear bright song, and I heard his call note many times. We studied him every day and notified many bird students so that they might enjoy the unusual opportunity with us.

He remained in the garden eleven days. After he had been there about three days a storm set in of rain and dense fog, which lasted a week. He was seen on the twelfth of October, but the morning of the thirteenth was fair and I was unable to find him so that it would appear that he was held there by the inclement weather and took advantage of the first clear night to start on his long flight southward.— Ida G. Jenkins, *Boston, Mass.*

Hooded Warbler at Nahant, Mass.— On the afternoon of August 30, 1913, in company with Messrs. Albert Richards and Lawton W. Lane, while walking leisurely through one of the estates at East Point, Nahant, our attention was attracted to a warbler new to us all. It proved to be a male Hooded Warbler (*Wilsonia mitrata*) in full plumage.

The bird was very active but not shy and allowed us to watch it at close range as it flitted from one shrub to another in pursuit of insects. The black markings of the head contrasted with the yellow gave the bird a striking appearance and when on the wing the tail was spread displaying the white outer tail feathers. At no time did we observe the bird more than six or seven feet from the ground. Although I had been unable to find the species recorded from Essex County, Dr. Charles W. Townsend tells me that he has one record.— George M. Bubier, *Lynn, Mass.*

Some Rare Birds at Hamilton, Kansas.— I have in my collection of birds several specimens which I think worthy of record in view of their rarity in Kansas.

On October 3, 1909, I secured a specimen of Sabine's Gull (*Xema sabinii*), it was wading in the mud along the edge of a small pond and I first took it to be a plover, but on approaching nearer I found it was an unknown bird to me. As I had no gun with me I had to return over a mile to get it, on returning I found the bird swimming in the shallow water. It was an immature male in fine plumage. There is a previous record of its capture in the state, made I believe by Goss.

A fine specimen of Ruddy Turnstone (*Arenaria morinella*) was taken October 1, 1911, on the bank of a large artificial lake near here, it is an adult male. There is one previous record, a single specimen taken by Mr. F. E. Forbes on the Kansas River, August 16, 1898 (Snow). In Prof. Snow's last Catalog of Kansas Birds he states that he has omitted from it fourteen species that were inserted in his first and second editions on the authority of Dr. Brewer and Prof. Baird, but no specimens having been secured to date he preferred to drop them. Among them were the Black-bellied Plover (*Squatarola squatarola*) and the Red-breasted Merganser (*Mergus serrator*). I have four specimens of the former, two males and one female, adults, and an immature male. The first three were taken on the same lake as the turnstone, September 8, 1912, there were six in the flock, all adults; the other was taken a few days later, October 13, at the same place, and was alone. A Red-breasted Merganser was shot out of quite a flock of ducks, March 1, 1912. It is a male in full plumage.

In company with the Black-bellied Plovers I secured a specimen of Eastern Willet (*Catoptrophorus semipalmatus semipalmatus*) for which I do not think there is a published record for the state. The difference is quite apparent when the two birds are placed side by side. Our common Kansas bird being the western form.

On December 21, 1910, I was fortunate to secure a specimen of Evening Grosbeak (*Hesperiphona vespertina vespertina*), a male, and I should judge in full plumage. It was shot out of a flock of about a dozen as they were flying overhead, I was unable to secure other specimens. This also is I think a first record for the state.

I also have specimens of Knot (*Tringa canutus*), Stilt Sandpiper (*Micropalama himantopus*) and Red-legged Black Duck (*Anas rubripes*) also Red Backed Sandpiper (*Pelidna alpina pacifica*), all of which are of such rarity as to be classed as accidental visitants.

Identifications of all the above have been verified by the University of Kansas.— G. C. Rinker, *Hamilton, Kansas.*

A Quaint Reminiscence of Audubon.— After John James Audubon had completed his double elephant folio "Birds of America" and published also his "Synopsis of the Birds of North America," and had in 1839 returned from his last voyage to England, he lived for a while in New York City, previous to his moving in 1842 to the then suburbs, or what is now known as Audubon Park.

During this time he seems to have turned his attention more particularly

to quadrupeds, having in preparation his great work on this subject, and a document in my possession throws a quaint light on his researches at this time, as well as the thoughtfulness of the mayor in protecting the "inhabitants" from stray shots. The following is a reproduction of the document.— F. H. KENNARD, *Newton Centre, Mass.*

Mayors Office.
New York Aug 25th 1841

Permission is hereby given Mr Audubon or his son, to shoot Rats at the Battery early in the morning, so as not to expose the inhabitants in the vicinity to danger.

Robert H Morris
Mayor

A Correction.— In the article by Thurston and Boyle on Long Island birds in 'The Auk,' XXX, line three, page 545, 'Ruby-crowned Kinglet' should read Golden-crowned Kinglet.— HENRY THURSTON, *American Museum of Natural History, New York City.*

RECENT LITERATURE.

Gurney's 'The Gannet.' [1] — It is refreshing to be able to turn from the multitude of faunal papers and diagnoses of new subspecies which make up such a large proportion of the ornithological literature of the day, to a work dealing exclusively with a single species, but treating it exhaustively from practically every point of view. Such a work is Mr. Gurney's portly volume on the Gannet. With an interest aroused nearly fifty years ago the author has lost no opportunity to add to his stock of information concerning this interesting bird until he has been able to compile a work which for years to come will be our chief work of reference for this species. He has delved into the works of old voyagers and explorers and into ancient historic volumes for the hidden lore that they contain; visited most of the existing colonies of Gannets, conducted correspondence with hosts of persons acquainted with the bird in life as well as those conversant with its history in the past and studied all the scientific literature dealing with it.

The Chapter headings from which one may gain some idea of the scope of the work are: I. Names of the Gannet; II. Distribution; III–IX. Descriptions of the present colonies; X. Abandoned Breeding Colonies; XI. Numbers; XII. Nidification; XIII. Nestling; XIV. Habits; XV. Food; XVI. Flight; XVII. Mortality; XVIII. Age; XIX. Gannets as Food; XX. Plumage; XXI. Osteology; XXII. Anatomy. There are also; a historical preface, introduction, bibliography and five appendices dealing with allied species, tropical Boobies, parasites, historic and prehistoric remains and fossils. Mr. Gurney has well called the Gannet 'a bird with a history' and the historic portions of his monograph are most interesting reading, particularly the quotations from Martin Martin, Gent., who in 1698 published an account of a voyage that he had made to "St. Kilda the remotest of all the Hebrides" and whose account of the Gannet is considered by Mr. Gurney to be one of the best that has been published. Martin moreover has much of interest to say on other species besides Gannets. He tells us that he and his crew were made most welcome on their arrival and were liberally supplied with eggs mainly those of the Guillemot. During their three weeks' stay they consumed 16,000 or 18 eggs *per diem* for each man. Our author remarks that "One wonders not so much at the islanders collecting 16,000 eggs, which would be an easy task, as at the capacity which Martin and his crew possessed to eat so many."

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[1] The Gannet | A Bird With a History | By | J. H. Gurney, F. Z. S. | Author of "A Catalogue of the Birds of Prey (Accipitres and | Striges), with the number of Specimens in Norwich Museum." | Illustrated with numerous Photographs, Maps and Drawings, and one Colored Plate by Joseph Wolf | Witherby & Co.| 326 High Holborn, London | 1913. 8vo. pp. i–li + 1–567. Price 25s. net.

The history of the Gannet however dates far back of Martin's time, not only is there an admirable story of the Bass Rock Gannets in the 'Historia Majoris Britanniæ' 1521, but mention is made of the birds in an inventory of the resources of Lundy Island in 1274 during the reign of Edward I, and the name Gannet occurs in an Anglo Saxon poem by Beowulf A. D. 597.

The name Gannet seems to come from the same source as gans, gander and goose; while 'Soland' or 'Solon Goose' is from the Icelandic 'sula-n' *i. e.*, 'the Gannet.'

Gannets now breed on a limited number of rocky, more or less inaccessible islets in the northern seas, which they have occupied from time immemorial. Lundy Island off the English coast is at present abandoned on account of the persecution of the birds. The inhabited islets are Grasholm, Wales; Bull Rock and The Skelligs, Ireland; Bass Rock, Ailsa Craig, St. Kilda Islands, Sulisgeir and The Stack of Stack and Skerry, Scotland; Mygganaes, Færöes; Sulusker, Eldey and Grimsey, Iceland; and Bird Rocks and Bonaventure, Canada. The total number of birds now living is estimated by Mr. Gurney as 101,000 (exclusive of course of the allied species of South Africa and Australia).

The accounts of the habits of the bird contain a vast amount of information from the personal observation of the author and from various other sources, while the chapters on osteology and anatomy contain extracts from probably all the published papers touching on the subject. Mr. Gurney is to be congratulated upon the successful completion of a most valuable addition to ornithological literature, while the publishers have contributed their share in producing a beautiful example of book making — admirable typography and half-tones and an attractive binding.— W. S.

Sage and Bishop on the Birds of Connecticut.[1]— Thirty-six years have passed since the appearance of the last list of Connecticut birds,— that prepared by Dr. C. Hart Merriam in 1877. Both the lapse of time and the enormous strides that have been taken in the study of American ornithology, have made it highly desirable that we should have a more modern work on the birds of the state, which would bring the knowledge of the subject up to date. It would have been difficult to pick two men better qualified for this task than the authors of the work before us and the results of their labors are quite up to our expectations.

The main part of the work consists of an annotated list of 329 species with an appendix including seven introduced species and ten of doubtful status. The data under each are based upon the collections and notes of the authors and upon information furnished them or recorded by others.

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[1] The Birds of Connecticut | By John Hall Sage, M. S. | Secretary of the American Ornithologists' Union | and | Louis Bennett Bishop, M. D. | Fellow of the American Ornithologists' Union | assisted by | Walter Parks Bliss, M. A. | *vignette.* | Hartford. | Printed for the State Geological and Natural History Survey, | 1913. [Bulletin No. 20.] 8vo. pp. 1–370.

Mr. Bliss has tabulated and arranged much of these data and combined them into a harmonious whole.

Under summer resident species, are given a general statement of the character of occurrence and abundance; the earliest and latest record for several localities; character and location of the nest; number of eggs and average date; other nesting dates and notes on abnormal plumages, unusual occurrences, etc. Under transients are given the earliest and latest dates for both spring and fall migration, while all records are given for species which are rare or irregular. For the sake of brevity the most frequent authorities quoted for records are indicated by their initials or their last name alone, and a list of full names and initials is given at the end. This plan appeals to us as the best we have seen for bringing into convenient shape a vast amount of records. This part of the work is intended primarily for the ornithologist or student who desires to obtain facts or figures on the occurrence of any given species in Connecticut and very fittingly it is followed by a good bibliography. For the farmer, or student of live wild birds there is provided an admirable treatise on Economic Ornithology prepared entirely by Dr. Bishop and based upon his own observations and the best reports of government and state economic ornithologists. The idea of separating these two subjects as distinct parts of the report is novel and there is much to be said in its favor. The nomenclature and classification follow the A. O. U. Check-List.

The report is by no means only a list of the birds of Connecticut. Ornithologists interested in almost any special line of research will find in it matter of importance, well worth seeking for — historical accounts of the Wild Pigeon, and the early abundance of the Red-headed Woodpecker, valuable data on the parasitism of the Cowbird, as well as cases of Cuckoos' eggs in nests of other species and Barred Owl's eggs in nests of the Red-shouldered Hawk! The autumnal flights of Flickers and the former excessive shooting of these birds by gunners are described while albinos and abnormal plumages or eggs are noted under many species.

The report is in all respects a thoroughly up to date and well prepared state list and a contribution to ornithological literature of which the authors may well feel proud.— W. S.

Tyler on Some Birds of the Fresno District California.[1]— In this, the ninth publication of the Cooper Ornithological Club in the series known as 'Pacific Coast Avifauna', Mr. Tyler presents an account of the present day conditions of bird life in the vicinity of Fresno in the San Joaquin Valley.

So rapidly has this region been settled and conditions changed that a paper such as the one before us is most welcome, especially to those far re-

[1] Some birds of the Fresno District, California, By John G. Tyler. Cooper Ornithological Club, Pacific Coast Avifauna Number 9, Hollywood, California, Published by the Club, October 1, 1913. Roy. 8vo. pp. 1–114.

moved from California who are not acquainted with the changing conditions; while so diversified is the wild life in different parts of this great state that local ornithological reports such as this are perhaps equally welcome to the resident bird students.

Mr. Tyler does not attempt a summary of previously published papers dealing with the birds of the Fresno region, but presents simply the results of his personal experience of more than ten years, with quotations from friends upon whose observations he can place reliance. One hundred and sixty-one species are included, while fifty others previously reported as occurring were omitted because the records could not be satisfactorily proven. The paper is far from the all too frequent dry, annotated list. Besides a statement on the relative abundance and the general character of occurrence of each species, there are extended observations on their habits, food and nests which make entertaining reading and form a valuable contribution to the life histories of California birds.

It is sad to read of the rapid decrease in the water birds that formerly thronged the valley and unfortunately the immediate cause is one that neither the Audubon Societies nor legislation can check. "The large grain and stock ranches" says the author, "are being subdivided, reclamation work is steadily reducing the swamp-covered areas, vineyards and orchards are springing up everywhere with a consequent great increase in population. Even the tule ponds that remain are often unsuitable for a nesting place on account of the custom of using them as foraging grounds for bands of hogs." A careful perusal of Mr. Tyler's interesting pages however shows that there is still an abundance of bird-life to interest the ornithologist in the vicinity of Fresno and with the energetic campaign now being waged on behalf of the wild life of California let us hope that some of the species now most seriously threatened may still be preserved.— W. S.

Grinnell and Swarth on the Birds and Mammals of the San Jacinto Area of Southern California.[1]— This important report is based mainly upon field work conducted by the Museum of Vertebrate Zoölogy of the University of California in the year 1908, which resulted in the accession of 1099 mammals, 1533 birds and 437 reptiles. The authors describe in detail the various localities where collections were made, and discuss the life zones and faunas; annotated lists of 169 birds and 63 mammals are then presented while the paper ends with considerations of, (1) the "Boreal Fauna of San Jacinto Peak compared with that of Other Mountains of Southern California;" and (2) the "Sonoran Biota of the San Diegan District Compared with that of the Adjacent Desert."

[1] An Account of the Birds and Mammals of the San Jacinto Area of Southern California, with Remarks upon the Behavior of Geographic Races on the Margins of their Habitats. By J. Grinnell and H. S. Swarth. University of California, Publications in Zoology, Vol. 10, No. 10, pp. 197–406, pls. 6–10, 3 text figs. Oct. 31, 1913.

In considering questions of distribution the authors do not limit themselves to a consideration of life zones but recognize " three entirely different orders of ecological delimitation," which they indicate by the terms ' zonal,' ' faunal ' and ' associational.' In their discussion of the zones they fail to detect in the animal life any trace of either the Hudsonian or Arctic Alpine which had been credited to the San Jacintos by H. M. Hall in his report on the flora of the mountains, and rather question the desirability of including these zones on the very meagre data that he was able to furnish. The authors state that they would use the word ' fauna ' for " a subdivision of a life zone, based upon conditions of atmospheric humidity." As has been the experience of others however they find that practically it is better to use the term in a different sense, giving it in a manner a higher rank than the ' zone.' For instance they recognize a Colorado Desert and a San Diegan fauna each covering both the Upper and Lower Sonoran Zones. The late Dr. Arthur Erwin Brown advocated precisely the same plan in discussing the distribution of reptiles in Texas, and claimed that the Upper and Lower Sonoran zones of the eastern humid area had far more in common than either had with the corresponding zone in the arid region, and he therefore made his primary divisions east and west instead of zonal. Dr. J. A. Allen adopted a similar plan in his paper on ' Distribution of North American Birds ' (Auk, X, pp. 97–150).

In their use of ' Associations ' the authors are recognizing the work of the ecologic botanists, and they are essentially bringing out the correlation of the distribution of certain animals to certain plant ' formations ' — an important point and one which underlay a recent paper by Dr. Spencer Trotter.[1]

In their closing chapters the interesting fact is emphasized in connection with boreal islands or mountain tops that " the smaller the disconnected area of a given zone, the fewer the types which are present thereon," while the disturbing part that this principle is likely to play in attempts to establish centers of distribution and lines of dispersal upon the number of existing species is pointed out. The difference in the faunas on the two slopes of the San Jacinto mountains — semihumid on the west and extremely arid on the east, is pointed out as well as the variability in the extent to which characteristic forms of one fauna invade the other, the line of delimitation being by no means uniform for all species. This discussion opens up very interesting lines of investigation as to the reason for the different behavior of different species on the margins of their habitats and the whole paper is an excellent illustration of what may be accomplished in the study of distribution in limited areas with diversified physical conditions, such as prevail so frequently in the west but are hard to find in the eastern states.

The annotated list of birds is a valuable one and contains much impor-

[1] cf. Auk, 1913, p. 450.

tant original information on the habits, abundance, and relationship of the species treated. While gross comparisons are hardly permissible it is nevertheless interesting to note that of the 146 species and subspecies of land birds 85 are identical with those listed in Mr. Tyler's Birds of Fresno noticed above.— W. S.

Gifford's 'Birds of the Galapagos Islands.' [1] — At the time of the earthquake and conflagration at San Francisco the Academy of Sciences had an expedition in the Galapagos which during an absence of 17 months secured the finest series of collections yet obtained on these interesting islands, and these have formed the nucleus of the new museum which the Academy has had to build up. Reports on several of the collections have already been published and in the contribution before us Mr. Edward W. Gifford, assistant curator of ornithology at the Academy, and ornithologist of the expedition, presents the first installment of an account of the ornithological material that was obtained, of which the skins alone number 8,691.

Forty-five species are treated in the present installment all of which, except the Dove, are water birds. The fullness of the accounts of the resident species leaves little to be desired and the completed report promises to be the most important contribution to the ornithology of the Galapagos that has yet appeared. Seven half-tones illustrate some of the more interesting species and their nests, including photographs of the flightless Cormorant (*Nannopterum harrisii*).

The nomenclature and sequence follow Sharpe's 'Hand List,' but even with this fact clearly stated it is unfortunate that the authorities for the names were not added, as is customary in all works of such importance as the present. We trust that Mr. Gifford may be able to push his report to an early completion and maintain the high standard that he has established.— W. S.

Brooks' List of the Birds of West Virginia. [2] — Mr. Viquesney's report as forest, game and fish warden of West Virginia is another of the admirable, educational reports that are being issued today by game wardens in various states.

In addition to general information on the protection of insectivorous and game birds, there is included a carefully prepared list of all the birds of the state by Rev. Earl A. Brooks. This is divided into two parts, one

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[1] Expedition of the California Academy of Sciences to the Galapagos Islands 1905–1906. VIII. The Birds of the Galapagos Islands, with Observations on the Birds of Cocos and Clipperton Islands (Columbiformes to Pelecaniformes). By Edward Winslow Gifford. Proc. Cal. Acad. Sci. Fourth Series, Vol. II, Pt. I. pp. 1–132, pl. 1–7. August 11, 1913.

[2] Second Biennial Report of the Forest, Game and Fish Warden [of West Virginia] 1911–1912. J. A. Viquesney. Belington [W. Va.] [1913]. 8vo. pp. 1–106 with 19 half-tone plates. List of birds, pp. 87–106.

treating of the game species, fifty-two in number, and the other the non-game birds,— one hundred and ninety-four. The latter list contains brief annotations and both vernacular and current technical names are used for all species; the former, prepared originally as an address before the State Fish and Game Protective Association, lacks technical names and is not so uniform in character, the shore birds being listed without annotations while the gallinaceous species are treated at considerable length.

The list forms a reliable summary of the wild bird life of West Virginia, but we trust Mr. Brooks will continue his researches and furnish us with a more comprehensive report, giving the distribution of the species in detail and the actual records of the rarer forms, with a discussion of their economic value. Such a report would be well worthy of publication by the state government and would be a welcome addition to ornithological literature.— W. S.

Bailey's 'Life Zones and Crop Zones of New Mexico.'[1]— This report is based upon the field work of the Biological Survey, for a number of years past, conducted mainly by Mr. Bailey himself. The excellent map, which is on a reasonably large scale, presents the life zones of the state in considerable detail while the text discusses the physical characteristics of each and presents lists, not only of the mammals, breeding birds, reptiles and plants, but of the various varieties of vegetables and fruits which thrive there. There is also a comparison of the several mountain ranges of New Mexico and a bibliography. The report will prove of great value to all students of geographical distribution, and ornithologists will look forward with much interest to the report on the birds and mammals which, it is announced in the introduction, will be published later. We are pleased to notice in this and other recent publications of the Biological Survey a return to the possessive form in the case of birds named after persons, thus conforming to the 'A. O. U. Check-List' as well as to popular usage.— W. S.

Todd on New Neotropical Birds.[2]— Thirty-three new species and subspecies are briefly described by Mr. Todd in the present paper. Most of these are from the Santa Marta region, Colombia; the provence del Sara, Bolivia; and the Rio Caura, Venezuela, and they give us some idea of the wealth of neotropical material that is being acquired by the Carnegie Museum. Some of these descriptions are, we regret to say, open to the same criticism that has already been made in these pages in other connections,

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[1] North American Fauna. No. 35. Life Zones and Crop Zones of New Mexico. By Vernon Bailey. U. S. Department of Agriculture, Bureau of Biological Survey. Henry W. Henshaw, Chief. 8vo. pp. 1–100, 16 half-tone plates, 6 text cuts, and a colored map. Actual date of publication, September 5, 1913.

[2] Preliminary Diagnoses of Apparently New Birds from Tropical America. By W. E. Clyde Todd. Proc. Biol. Soc. Washington, Vol. XXVI, pp. 169–174, August 8, 1913.

i. e., they are full enough to answer the actual requirements of publication under our code but are often not full enough to enable anyone to recognize the species without consulting the type specimen. Such diagnoses are frequently more of a hindrance than a help to the advancement of science, and it seems a pity that our American ornithologists, who have set such a high standard in most of their work, cannot take time to adequately describe all of the new forms which they are in such haste to name, or that the institutions which they represent cannot provide immediate means for the publication of adequate descriptions, for we realize that the author is not always to blame. A new genus *Microstilbon* is proposed for *Microstilbon inspiratus*, a Bolivian hummingbird allied to *Chætocercus*.— W. S.

Kirkham's 'North and South.' [1] — Mr. Kirkham already well known as a writer on nature, author of 'East and West,' 'In the Open,' etc., compares, in the present volume, the aspect of nature in the Lake Country of New York and in the Coastal Plain of South Carolina, attempting, as he puts it, "to reflect the spirit of the North and of the South, as do the birch and the cypress . . . . to make you hear in an inner ear the ringing call of the Carolina wren and to become suddenly conscious of the perfume of jasmine; or to hear the eerie song of the upland plover descending from the sky, and again to be dimly aware of water lilies and the lapping of little waves on a summer day." That he has succeeded admirably in his undertaking his readers will, we think, unanimously agree.

Mr. Kirkham evidently possesses an accurate knowledge of the birds, flowers, trees and insects and an ability to treat of them as he finds them; to bring before us not only the characteristics of the species of which he writes but also the more subtle spirit of their environment. This constitutes his interest in nature, and he has little sympathy for the man who never gets beyond the bare facts. He says "you have perhaps kept a record of birds and flowers, and have devoted much time and energy to the matter, but this is the most elementary work. You will graduate someday from bookkeeping unless you aim to remain a bookkeeper all your days. . . . . Ornithology, like everything else, will be just as commonplace as the mind that pursues it." He apparently forgets that some people are unable to get beyond the 'bookkeeper' stage, and even in attaining that, they may derive as much pleasure and benefit from the study of nature as the more gifted writers who, like our author, are privileged to soar to greater heights. The two spots of which this volume treats are a summer camp on the shore of Canandaigua Lake, N. Y., and a winter home near Milford, S. C. Besides frequent casual mention of birds there are two chapters that deal entirely with them. 'Birds about the Camp' treating of the northern locality and 'Winter Bird Life' with the southern.

[1] North and South. Notes on the Natural History of a Summer Camp and a Winter Home. By Stanton Davis Kirkham. G. W. Putnam's Sons. New York and London. The Knickerbocker Press, 1913. 8vo. pp. 1–286. $1.75 net.

These of course are of especial interest to the ornithologist although the whole volume will be interesting reading to all who love the great outdoors. The book is attractively printed and is illustrated by a number of half-tones of characteristic scenery from photographs by the author.— W. S.

Wood on Michigan Birds.[1]— Continuing his investigations on the Charity Islands already noticed in these pages,[2] Mr. Wood was able during July, 1911, to add eight species to his former list and to secure breeding data on 37 species. Notes on 66 species are included in the present paper which are accompanied by 19 half-tones illustrating the physical features of the islands. In another short paper[3] Mr. Wood presents notes on sixteen species of rare or unusual occurrence in Michigan.— W. S.

Howell on New Birds from Alabama.[4]— Even the eastern United States seems still able to produce novelties for those who care to make careful comparisons of material from different areas and are content to establish new forms on slight differences. Mr. Howell finds that the Crows of the southern states exclusive of Florida and possibly Georgia, are smaller than either the northern or the Florida race. This form which ranges north to the District of Colombia and southern Illinois he names *Corvus brachyrhynchos paulus*.

A number of Towhees from Alabama differ from the northern form in having the white markings less extensive, while they are distinctly larger than Florida birds. This form is separated as *Pipilo erythrophthalmus canaster* although Mr. Howell is unable as yet to fix the limits of its distribution.— W. S.

Mearns on New African Birds.[5]— In two papers Dr. Mearns adds eleven more forms to the already long list of novelties discovered by him on his two trips to Africa. In the first there are described *Cisticola robusta abaya*, Lake Abaya, Abyssinia; *C. r. tana*, Tana River, British East Africa; *C. subrufica pilla bodessa*, Bodessa, Abyssinia; and *C. s. fricki*, White Lake Abaya, Abyssinia, all obtained on the Childs Frick Expedition, and *C.*

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[1] The Breeding Birds of the Charity Islands with Additional Notes on the Migrants. By N. A. Wood, Fourteenth Report of the Michigan Academy of Science, 1912. pp. 178–188.

[2] Auk, 1912, p. 118.

[3] Notes on Michigan Birds. By N. A. Wood, Fourteenth Report of the Michigan Academy of Science, 1912, pp. 159–162.

[4] Descriptions of two New Birds from Alabama. By Arthur H. Howell, Proc. Biol. Soc. Wash., Vol. XXVI, pp. 199–202, October 23, 1913.

[5] Descriptions of Six New African Birds. By Edgar A. Mearns, Smithsonian Miscellaneous Collections, Vol. 61, No. 11, pp. 1–5, August 30, 1913.

Descriptions of Five New African Weaver-Birds of the Genera Othyphantes, Hypargos, Aidemosyne, and Lagonosticta. By Edgar A. Mearns. Smithsonian Miscellaneous Collections, Vol. 61, No. 14, pp. 1–5. September 20, 1913.

natalensis nilotica, Lado Enclave, and *Pyromelana flammiceps changamwensis*, Changamwe, coast of British East Africa, secured by the Smithsonian African Expedition under Col. Theodore Roosevelt. The second paper deals wholly with Weaver Birds, four were obtained on the Childs Frick Expedition, the last one on the Smithsonian Expedition. The new forms with type localities are as follows: *Othyphantes fricki*, Sidamo, southern Abyssinia; *Hypargos niveoguttatus macrospilotus*, Meru Forest, British East Africa; *Aidemosyne cantans meridionalis*, Indunumara Mts., B. E. A., *Lagonosticta rubricata fricki*, Gardulla, Abyssinia; and *Aidemosyne inornata*, El Dueim, White Nile, Sudan.— W. S.

Shufeldt on Fossil Feathers and Fossil Birds.[1]— In this paper Dr. Shufeldt discusses the various specimens of fossil feather impressions that have been described, illustrating most of them, and also presents some photographs of other specimens found in the Florissant formation in Colorado by Prof. T. D. A. Cockerell and others.

Two new species are based on bird remains in the Peabody Museum, Yale University. *Hebe schucherti* from the Green River Eocene of Wyoming, is a possible ally of the South American *Pteroptochidæ*, although the author is not prepared to say positively what its affinities may be other than that it is passerine. *Yalavis tenuipes* is another passerine species about the size of a warbler, locality unknown.— W. S.

Gain, on Penguins of the Antarctic Regions.[2]— This interesting account with numerous excellent illustrations is reprinted from La Nature. Dr. Gain was naturalist of the Charcot Expedition of 1909, which wintered at Petermann's Island and had ample opportunity for studying these interesting birds. His report upon them forms a convenient work of reference on the habits of a group with which the recent antarctic expeditions have made us more familiar than ever before, birds whose remarkable structure and peculiar actions arouse our keenest interest.— W. S.

Mathews' 'A List of the Birds of Australia.'[3]— Some months ago, much to our regret, we felt it necessary to comment adversely upon the

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[1] Fossil Feathers and some heretofore undescribed Fossil Birds. Journal of Geology, XXI, No. 7, Oct.-Nov. 1913, pp. 628–652.

[2] The Penguins of the Antarctic Regions. By L. Gain. Smithsonian Report for 1912, pp. 475–482, plates 1–9. 1913.

[3] A List of the Birds | of Australia | By | Gregory M. Mathews, F. R. S. E. | Fellow of the Linnean and Zoological Societies of London | Member of the British Ornithologists' Union | Corresponding Fellow of the American Ornithologists' Union | Member of the Royal Australasian Ornithologists' Union | Author of | "The Birds of Australia" | Containing the Names and Synonyms Connected | with each *Genus*, *Species* and *Subspecies* of | Birds found in Australia, at present known to | the author. | [vignette]. Witherby & Co., 326 High Holborn, London, W. C. | 1913. roy 8vo. pp. i–xxiv + 1–332 + index and map of Australia howing type localities. [Edition limited to 270 copies.]

Check-list of Australian birds prepared by a Committee of the Royal Australasian Ornithologists' Union, inasmuch as the list did not at all reflect the present status of Australian ornithology, while it rejected the principles of zoological nomenclature now in almost universal use. In the course of our remarks we expressed regret that the Committee could not have seen its way clear to avail itself of Mr. Gregory M. Mathews' laborious researches into the nomenclature of Australian birds.

While we have had no occasion to alter our views on this matter, we are gratified to find that Mr. Mathews has gone steadily along with his researches and has now embodied them in a 'List of the Birds of Australia' which represents the finished result of the investigations of which his 'Reference List,' good as it was, constituted only a preliminary outline. While still rigidly upholding the International Code of Nomenclature Mr. Mathews has gone farther and has relinquished such of his personal views as were at variance with the published 'opinions' of the International Commission, and accepted the generic names of Brisson. It is broadminded action of this kind, that gives us such high hope of attaining a uniform zoological nomenclature in the not very distant future.

Mr. Mathews' 'List' follows the plan of the last edition of the A. O. U. Check-List and the recent Hand-List of British Birds by Messrs. Hartert, Jourdain, Ticehurst and Witherby; giving binomial headings for the groups of subspecies, generic types and the method of their fixation, and the type locality for each species as well as its range. It is moreover an improvement upon these lists in that it gives a full synonymy for both genera and species and fixes types for the generic synonyms. The work thus becomes far more than a list of Australian birds, being an important contribution to the study of ornithological nomenclature.

As an authoritative Australian list it stands preëminent. The literature has been exhaustively studied, every point of nomenclature has been made to conform with the rulings and opinions of the only authoritative body that we have — the International Commission and personal opinion has been made subservient to majority rule. It is to be earnestly hoped that Australian ornithologists will be broadminded enough to realize that in order to have any permanency in nomenclature we must follow some authoritative rules, and that they will accept as their guide the splendid work that Mr. Mathews has produced. Much remains to be done on Australian birds but here is a solid foundation upon which to build. No human work is infallible, there will be additions to this list as well as eliminations and alterations — without them there could be no progress, and there are also legitimate differences of opinion as to just how much differentiation a form should exhibit to warrant recognition. These, however, are inevitable in any list and we cannot but feel that this work of Mr. Mathews is going to be the one followed by the progressive ornithologists of Australia, many of whom are evidently not in sympathy with the list prepared by their committee.

In his preface Mr. Mathews presents a historic review of systematic

ornithology in Australia, and discusses the whole nomenclature problem as well as the zoogeography of the region.

The volume as a whole contains an enormous amount of information and ornithologists both in Australia and elsewhere should feel grateful to Mr. Mathews for his painstaking researches and for presenting the results in such an available form.— W. S.

Witherby on the Moult of the Rook.[1] — The well known Rook of England and Europe and an eastern subspecies ranging to Japan differ from the Crows in having the face and upper throat bare of feathers in the adult, though they are normally feathered in juvenal birds. The method by which the feathers are lost has been a frequent subject for speculation and most writers seem to have preferred to speculate rather than to experiment, as frequently happens in similar cases. Mr. H. F. Witherby, however, by securing a good series of birds of all ages in the flesh, and studying them intelligently, has cleared up the whole matter. He finds that at the post-juvenal moult a new set of feathers is acquired and the bird has a fully feathered face which it retains until January or later. The feathers are then moulted simultaneously with the wearing of the body plumage as the breeding season approaches. As the feathers drop out the papillae become active, but instead of producing feathers there arise only short 'pins' a millimeter or so in length, rarely terminating with short degenerate feather structures. The down feathers which are scattered here and there over the throat and face do not moult, and with the pins they suffer gradual abrasion until the next autumnal moult. At this and each succeeding post-nuptial moult the throat develops a covering of gray down which with a few degenerate feathers that appear with it soon wears away until the area is bare. The papillæ of the face do not seem ever to become active again after the post-juvenal moult.

Mr. Witherby has done an excellent piece of work in demonstrating exactly how and when this peculiar loss of feathers occurs. Why the feather papillæ should regularly become inactive he leaves to some one more conversant with feather development, and generously offers them his material.

While conducting this investigation on the moult of the head Mr. Witherby naturally took note of the sequence of plumage elsewhere, which he describes in detail and which is essentially the same as in our American Crow.— W. S.

Trevor-Battye's 'Camping in Crete.'[2] — This handsome volume forms a book of old world travel more than usually interesting to the

[1] The Sequence of Plumages of the Rook. With Special Reference to the Moult of the "Face." By H. F. Witherby. British Birds, Vol. VII, No. 5, October 1, 1913, pp. 126–139.

[2] Camping in Crete | with Notes upon the Animal | and Plant Life of the Island | By | Aubyn Trevor-Battye | M. A., F. L. S., F. Z. S., F. R. G. S., etc. | Including a Description of certain Caves and their Ancient Deposits | By Dorothea M. A. Bate, M. B. O. U. | with thirty-two Plates and a Map. | Witherby & Co. | 326 High Holborn, London | 1913. 8vo. pp. i–xxi +1–308. Price 10s 6d.

ornithologist inasmuch as the author's interests "lay away in the mountains and the plains" and he "only spent short intervals in the cities, leaving again as soon as he could possibly do so.' His object he states "is a very simple one; it is to picture the scenery and natural features of the island, and to lead the reader to go to Crete." The pages are naturally full of allusions to birds, and flowers and the general aspects of nature. The beautiful song of the Blue Rock Thrush is described, the habits of the Kestrels and the trapping of Partridges in the caves of the mountains.

Among the appendices are chapters on the plants, mammals, and birds of the island. The last includes only such as were observed or obtained between March and the end of June but contains mention of species recorded by other observers and not seen by the author, while the annotations are often full.

The naturalist has much the same experience with the Cretans as with rural natives of other countries. "On the whole," says our author, "they regard one, perhaps, as rather soft-headed — as harmless, but just a little touched in the head: else why should a man be eternally digging and picking and smelling plants, or taking endless trouble to follow some tiny bird over the heated rocks and peer at it through glasses; and then, if he shoots it, not even to eat it, but only take with patient trouble its feathers and its skin! It is ridiculous." We are glad to learn, though, that "the Cretans, unlike the people of France or Italy, do not slaughter the small birds."

The half-tone illustrations and the map are excellent and the book is as attractive in appearance as it is interesting to read.— W. S.

Hartert's 'Die Vögel der paläarktischen Fauna.'[1] — In the present installment of this important work the consideration of the *Strigidæ* is completed and the *Falconidæ* treated in full, with a few pages on the *Aquilidæ* (= *Buteonidæ*). We note the following new forms, *Bubo bubo swinhoei*, Kinkiang, China; *Athene noctua lilith*, Der-ez-Zor, and *Falco tinnunculus dacotiæ*, Eastern Canaries (Lanzarote).

Tyto Billberg is used for the Barn Owls and *Strix* for the Barred Owls and the nomenclature follows the International Code in all respects. Two cases are left undecided, i. e., *Aegolius* vs. *Cryptoglaux* and *Athene* vs. *Carine* which depend upon the 'one letter rule,' the question being whether *Aegolia* and *Athena* of earlier date render invalid the two above names. The trinomial system as in previous parts of the work is carried to the extreme, in the reduction of many widely separated forms to subspecies. The Merlin for instance becomes a subspecies of our Pigeon Hawk or to be more exact they are both grouped as subspecies under the binomial term *Falco columbarius*. So also our Barn Owl becomes *Tyto alba pratincola*, all the Barn Owls of the world being considered as subspecies of *T. alba*.

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[1] Die Vögel der paläarktischen Fauna. Systematische Übersicht der in Europa, Nord-Asien und der Mittelmeerregion vorkommenden Vögel. Von Dr. Ernst Hartert. Heft VIII (Bd II., 2). Berlin, August 1913.

We trust that this invaluable work of reference on palæarctic birds will be pushed to an early completion.— W. S.

Economic Value of Wild Birds in South Africa.— Dr. H. E. Warren, Director of the Natal Museum has recently published [1] an instructive summary of the relation of South African birds to agriculture. Dr. Warren comments on the abundance of birds in certain European countries and attributes their numbers in large part to the prevalence of hedges which furnish shelter and nesting sites. A noticeable scarcity of birds in South Africa is thought to be due to excessive clearing, the lack of hedges, and to the destructive activities of native and white boys.

The following groups of birds are said to be beneficial: owls, kestrels, the Tetraonidæ, coucals, woodpeckers, barbets, hoopoes, Caprimulgidæ, rollers, and cuckoos. Special mention is made of locust birds, including the white stork, the white-bellied stork, pratincoles, wattled starling and the hadadah ibis. Other groups coming in for commendation are the plovers, lapwing, cranes, the secretary-bird, ground hornbill, kites and certain other birds-of-prey. The birds mentioned as injurious include bulbuls, mouse-birds, and the pied starling.— W. L. M.

Bird Enemies of Diabroticas.— Two of the recent contributions from the U. S. Bureau of Entomology, published in the new series of Bulletins of the Department of Agriculture contain notes on the bird enemies of destructive beetles. The southern corn rootworm (*Diabrotica duodecimpunctata*), the adult of which is usually known as the spotted cucumber beetle, is a serious pest. High percentages of the stand of corn in some localities are damaged and this in addition to losses among cucurbit and other crops contribute to a total damage amounting to many thousands of dollars. The ubiquitous beetle responsible for this mischief is eaten by many birds. A list of 24 species furnished by the Biological Survey is published [2] by Professor F. M. Webster, the author of the two bulletins here mentioned.

A closely related beetle, the western corn rootworm (*Diabrotica longicornis*), causes the same sort of damage as its congener, and to a corresponding extent in its more limited range. The Biological Survey was able to furnish [3] the names of only two bird enemies of this pest, namely the nighthawk and the wood pewee.— W. L. M.

Shelford's 'Animal Communities in Temperate America.' [4]— With the chief exceptions of investigations in Michigan under Adams and

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[1] Agr. Journ. of South Africa. VI, No. 3. Sept. 1913, pp. 461–465.
[2] Bull. No. 5, U. S. Dept. of Agriculture, Sept. 1913, p. 9.
[3] Bull. No. 8, U. S. Dept. of Agriculture, Sept. 1913, p. 6.
[4] Shelford, V. E. Animal Communities in Temperate America as illustrated in the Chicago region. Bull. No. 5, Geog. Soc. of Chicago, October, 1913, 362 pp.

Ruthven, and Shelford's personal researches in ecology, ecological studies in this country have heretofore related almost entirely to plants. Shelford's status as a pioneer animal ecologist is therefore clear. The importance of the subject and his mastery of it are demonstrated by the book herewith reviewed.

The contents of 'Animal Communities in Temperate America' may be conveniently grouped in 3 categories, a general discussion of the animal organism and its environmental relations (3 chapters), the nature of various environments and an account of their inhabitants (11 chapters), and a general summary and theoretical discussion (one chapter.) Ecology as generally understood is the relation of organisms to environment. As environment includes all living things with which a species comes in contact as well as its inorganic surroundings, it is easy to see that ecology is a very comprehensive science. In fact the impression one gathers from the introductory chapters of Shelford's book is that ecology is only less broad than biology as a whole.

The science of ecology has one obstacle to struggle against, that is, the impression that ecological papers often seem to be but an elaboration of the obvious. The present reviewer must admit that this criticism is not unfounded; in fact the impression forced upon him by a pretentious ecological publication of some years since took the following form, somewhat Hibernice, that it was a statement of things everyone knew in language no one could understand. Ecologic terminology is not carried to an extreme in Shelford's book. The statement of facts constituting part of the fundamantal knowledge of most biologists is necessarily included. A little inspection, however, shows that the ecologist endeavors to get at the physiological basis for the relations of animals to their environments. The obvious, well it is obvious, but the why of the obvious, ah! there is where the expert in ecology is needed. Everyone knows that black-fly larvæ live on the upper surfaces of stones in swift currents. Why they prefer this habitat is not so well known. Besides the evident advantage of having a plentiful supply of food constantly brought along by the stream, the ecologist has found that they cannot complete their life history in the absence of current. The pupa of the fly is loosely enclosed in a cocoon. It has been found that without current the insect *cannot make this cocoon*, but makes a shapeless tangle instead. Certain animals prefer sand that is less shifting and is slightly *darkened by humus*. Some fishes can live in water with only 1 cc. of oxygen per liter while others require from 6–14 cc. We might enumerate other instances of scientific answers to various whys, but suffice it to say that ecology is a field that has long needed cultivation. It has already produced valuable results but much remains to be done.

The notes on birds in this book consist largely of lists of the species inhabiting various formations. There can be little complaint about most of these, but the statement on page 274 that "The Baltimore and Orchard Orioles build elaborate nests on the shrubs," should be corrected. On page 166 the scarcity of information on quantity of life on the land is

mentioned. However the following papers bearing on this point could with advantage have been abstracted or cited in the bibliography.

Burns, F. L. A warbler census. Osprey, Vol. 2, No. 4, Dec. 1897, pp. 48–50.

" A sectional bird census. The Wilson Bulletin. N. S. Vol. 8, No. 4, Dec. 1901, pp. 84–103.

Forbes, S. A. An ornithological cross-section of Illinois in Autumn. Bul. Ill. State Lab. Nat. Hist., Vol. 7, 1907, pp. 305–335.

" The mid-summer bird life of Illinois: a statistical study. Am. Nat., Vol. 42, Aug. 1908, pp. 505–519.

Hales, H. The birds on a farm. Oologist [Willard's]. Vol. 5, 1880, pp. 73–75.

McAtee, W. L. Census of four square feet. Science, N. S., Vol. 26, Oct. 4, 1907, pp. 447–449.

Some remarks on the economic significance of birds call for further comment here. On pages 8 and 10 Shelford notes the incongruities of protection based on sentimental grounds. We have no quarrel with these statements, since upon the basis of sentiment alone, the protection of all groups may be urged with equal propriety.

The protection of birds for economic reasons is an entirely different matter, and to the reviewer, seems to rest upon an adequate foundation. Shelford says " Other things being equal there are but two more reasons for special measures for the preservation of birds, than for the preservation of reptiles, amphibians, or insects. First, birds are subject to destruction by reckless gunners. Second, they are less dependent upon natural conditions . . . . and are better able to survive after land has been put under cultivation than some other groups." (p. 11.)

Two additional reasons for the protection of birds, one would say without reservation, shou'd be enough to warrant preferential protection for them. The second reason given by Shelford touches the heart of the matter. Birds are abundant and very adaptable. They have to a large degree that independence of environment to which man owes in part the dominance he now enjoys. Birds have a greater potentiality for good than any other group of metazoa. The abundant small mammals are excluded for the same reason as vegetarian insects, their economic tendencies are too largely adverse to the best interests of man. Contrasted with other groups of predators upon the enemies of man, birds are greater destroyers and more mobile than any other group, they are more abundant than the mammals, and less subject to great fluctuations in numbers than the parasitic and predaceous insects.

There are few who would deny that as a group birds are more useful and less injurious, insects less useful and more injurious. As reasons for mundane activities usually go, those for special protection for birds are cogent.

Shelford stands pat in referring to " that detestable avian rat, the English sparrow." This again is a matter of sentiment, the bird is detestable to those who detest it. The following facts should not be forgotten. The

English Sparrow alone of all our birds will live in the parkless sections of large cities; to many people there it is *the only bird* and they would not give it up. As to economic value, it may be said that the English Sparrow is known to feed on a larger variety of insect pests than is any native bird and that it is one of the most effective enemies of the destructive alfalfa weevil.

The part of the theoretical discussion in Shelford's book that is probably of most interest to readers of 'The Auk' is that relating to geographical distribution. Remarks on page 161 indicate that the variously proposed laws of temperature control in the opinion of ecologists, do not fit the case. These opinions are summed up by Shelford on p. 299: "Nothing is, I believe, more incorrect than the idea that the same single factor governs the regional distribution of most animal species. Since the environment is a complex of many factors, every animal, while in its normal environmental complex, lives surrounded by and responds to a complex of factors in its normal activities." The question properly asked, "Can a single factor control distribution?" probably must be answered in the negative.

As to the general style of the book it may be said that it is not adapted to recreative reading. The book is frankly a manual or text-book, hence the style is direct, concise and inornate. The title more properly would read "Animal Communities in the Chicago Region." Temperate America not only includes part of the continent to the south but is of too broad implication even for the present treatment of the subject as applied to North America. The illustrations are abundant and good; the bibliography and indexes are excellent. The publication was subsidized and locally distributed by The Geographic Society of Chicago. It is handled, however, as one of the regular series of University of Chicago publications and may now be obtained only from the University Press.— W. L. M.

The Oriole.[1]— This handsomely printed and well illustrated journal appears under the editorship of Mr. John Dryden Kuser who is also president of the Somerset Hills Bird Club, of which it is the official organ. The objects of the club are the protection and study of birds, and this, their first publication, will go far to attract attention to their work and to stimulate the members to further endeavor. There are articles by members, on the Chickadee, Passenger Pigeon, Cardinal and Mallard, illustrated by colored plates loaned by the National Association of Audubon Societies, and other contributions of a more general nature including one by W. De W. Miller, 'Hints on Bird Study'; and one by C. Wm. Beebe, 'Feathered Martyrs.' Dr. Wm. H. Wiegmann also contributes three records of the Purple Sandpiper near New York City, and a note on the occurrence of the Bartramian Sandpiper, both rare species in this vicinity.

We congratulate the editor of the Oriole upon its creditable appearance and trust it may have a useful and successful career.— W. S.

[1] The Oriole. Official Organ of the Somerset Hills Bird Club, Bernardsville, N. J. Vol. 1, No. 1, August, 1913.

The Ornithological Journals.

Bird-Lore.[1] Vol. XV. No. 5. September–October, 1913.

With Asio in the Greenwood. By Florence Merriam Bailey.— A most interesting account of the Long-eared Owl in North Dakota.

The Sharp-tailed Grouse in Manitoba. By J. Woodcock.— With photograph from life.

Notes on a pair of Holbœll's Grebe. By M. S. Crosby.

An Opportunity Interrupted. By Arthur A. Allen.— A study of the nesting of the Blue-headed Vireo. A Cowbird's egg laid before the nest was quite completed was 'floored over' but two more were laid later!

The Migration of North American Sparrows.— Harris' and the Golden-crowned Sparrows. Migration Tables by W. W. Cooke, plumage notes by F. M. Chapman. Color plate by Fuertes.

Educational Leaflet.— The Cat-bird. By Witmer Stone.— With color plate by Horsfall.

Bird-Lore. Vol. XV. No. 6. November–December, 1913.

Impressions of the Voices of Tropical Birds. By Louis Agassiz Fuertes. — The first installment of what promises to be an interesting and valuable discussion of the songs and singing habits of South American birds. Illustrated by original sketches.

The Tropic-Birds of Bermuda. By Karl Plath. Illustrated by photographic reproductions.

The 'Old Maid' Gull. By W. O. Doolittle.

The Present Status of the Heath Hen. By George W. Field.

My Bird Neighbors. By Mrs. L. H. Toussaint.— In Florida.

How to Make a Thrashery. By Mable Osgood Wright.

The Migration of N. A. Sparrows. The Rosy Finches. Migration by W. W. Cooke, plumage notes by F. M. Chapman, color plate by Fuertes.

The Annual Report of the Audubon Societies forms a contribution of about 100 pages, well worthy of perusal.

The Tufted Titmouse. By Florence Merriam Bailey. Educational Leaflet, with plate by Fuertes.

The Condor.[2] Vol. XV. No. 5. September–October, 1913.

A Revision of the California Forms of *Pipilo maculatus* Swainson, with Description of a New Subspecies. By H. S. Swarth.— In this paper a material increase in the races of *Pipilo maculatus* is proposed; *P. m. falcifer* McGregor, is recognized for the coast form regarded as inseparable from *P. m. oregonus* in the A. O. U. Check-List; *P. m. megalonyx* is restricted to the San Diegan region and the birds of the great interior valleys is separated

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[1] Organ of the Audubon Societies. Edited by F. M. Chapman. Published by D. Appleton & Co., Harrisburg, Pa.

[2] Edited for the Cooper Ornithological Club, by Joseph Grinnell. Published at The Condor office, Hollywood, California.

as *P. m. falcinellus* subsp. nov. Grinnell's *P. m. curtatus* regarded as identical with *P. m. arcticus* is recognized as distinct, occurring in the Warner Mountain region in summer and along the lower Colorado in winter. In addition it is pointed out that *P. m. clementæ* occurs only as San Clemente and Santa Catalina Islands, the Santa Cruz bird being *megalonyx*. This paper seems to be a very careful piece of work and the additional information relative to *P. m. curtatus* should call for a reconsideration of this form on the part of the A. O. U. Committee.

Unusual Nesting Site of the Mallard. By O. J. Murie.— In a tree seven feet from the ground.

Call Notes and Mannerisms of the Wren Tit. By J. Grinnell.— A valuable contribution to the history of this unique bird. Mr. Grinnell's reference to the value of song in judging relationship of birds is in line with an editorial in the July 'Auk,' while his efforts to represent the various vocal efforts of the bird by the syllabic method are additional evidence of the utter failure of this method in the vast majority of cases. His careful analysis would doubtless be understood by one who had already heard the bird, but to one who has not it conveys no meaning whatever as an aid in trying to reproduce the notes. There seems to be no method by which the quality of a song may be conveyed in words to one who has not heard it.

The Wilson Bulletin.[1] Vol. XXV. No. 3. September, 1913.

Home Life of the Glossy Ibis (*Plegadis autumnalis* Linn.). By Oscar E. Baynard.— An account of the nesting of the species at Orange Lake, Alachua Co., Florida; with half-tone illustrations.

The Olive-backed Thrush (*Hylocichla ustulata swainsoni*) at his Summer Home. By Cordelia J. Stanwood.— One of the very best studies of nestling birds that has yet appeared, with tables of increase in weight, and length, observations on food, etc., illustrated by half-tones from photographs.

A Vacation in Quebec. By G. Eifrig.

The Winter Birds of Algonquin Park, Ontario. By A. Cleghorn.

The Warbler.[2] Vol. VII. 1913 (first issue since October, 1910).

A Theoretical Analysis of the Colors of Familiar Warblers. By John Treadwell Nichols.— A detailed discussion of the plumages of 25 familiar species, without however arriving at any very satisfactory result. It seems doubtful if any such result can be attained by the study of any limited group of birds.

A Nesting Season in Nova Scotia. By Harold F. Tufts.

An Apparently Heretofore Unfigured Plumage of *Conuropsis carolinensis*. By Henry Thurston.— A green-headed bird with an 'orange-crimson' frontlet and cheeks, but no yellow. It is supposed to be the normal juvenal plumage.

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[1] Edited for the Wilson Ornithological Club by Lynds Jones, Oberlin, Ohio. Edited and published by John Lewis Childs, Floral Park, N. Y.

A Collecting Trip to Diomede Island. By John Koren.

Notes on the Nesting of Bobwhite at Flowerfield, L. I. By John Lewis Childs.— With half-tone plate of nest.

Wilson's Plover. By Henry Thurston.— At Tampa Bay, Fla.

The Depredations of Cats on Muskeget Island. By G. K. Noble.— Cats left by inhabitants of hunters' shacks destroy many nesting terns.

Long Island Bird Notes. By John Lewis Childs and Henry Thurston.

Notes Extending Dates of Arrival and Departure of Certain Species on Long Island. By Henry Thurston.— Notes on 23 species.

Long Island Notes. By J. T. Nichols and R. C. Murphy.— Notes on 51 species.

Two hand colored plates of a set of eggs of the Knot and the head of the immature Carolina Paroquet illustrate the number.

The Oölogist.[1] Vol. XXX. No. 10. October 15, 1913.

Birds seen on a Long Journey. By A. C. Read.— A nominal list of species seen *en route* from Isle of Pines to Montreal Canada and return.

The Oölogist. Vol. XXX. No. 11. November 15, 1913.

Wintering of the Catbird at Pittsburg, Pa. By Thomas D. Burleigh.

The Northern Pileated Woodpecker. By S. S. Dickey.— Nesting in Huntingdon Co., Penna.

Unusual Winter Birds. By Thomas D. Burleigh.

The Ibis.[2] X Series. Vol. I. No. 4. October, 1913.

Notes on Birds around Mpumu, Uganda. By L. M. Seth-Smith.— Annotated list of 174 species with colored plate of eggs and half-tone of *Platystira cyanea* on its nest.

Corrections to the 'Catalogue of the Collection of Birds' Eggs in the British Museum.' By Rev. F. C. R. Jourdain.— This contribution covers only the palæarctic species.

Notes and Observations on the Painted Snipe (*Rostratula capensis*) in Ceylon. By J. O. Beven.— An interesting account of this bird which is one of comparatively few species in which the female is larger and more brightly colored than the male.

Notes on the Vultures found in the neighborhood of Simla and adjacent ranges of the Himalayas. By P. T. L. Dodsworth.— A valuable contribution to the life history and distribution of seven species of these birds which on account of their large size and repulsive nature have been but little studied. It is pointed out that a lack of satisfactory specimens renders it impossible to settle finally the question of the identity of *Gyps fulvus* and *G. fulvescens*.

A few Remarks on the European Certhiidæ. By Collingwood Ingram. — Six subspecies are recognized of which *Certhia familiaris pyrenaica* from the upper forests of the Pyrenees is described as new.

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[1] Edited and published by R. M. Barnes, Lacon, Ill.

[2] Edited for the British Ornithologists' Union, by W. L. Sclater. Published by R. H. Porter, 7 Princess St., Cavendish Sq., W., London.

On a Collection of Birds from Southern Abyssinia presented to the British Museum by Mr. W. N. McMillan. Part I. Passeres. By W. R. Ogilvie-Grant.— This report is based upon a collection of upwards of 3000 skins collected by P. C. Zaphiro employed by Mr. McMillan to supplement the collection obtained on his expedition to the Anglo-Egyptian Sudan in 1903–1904. The annotated list includes 229 species, of which *Salpornis salvadorii abyssinica*, Limonu on the Urguessa River, is described as new. Several other novelties from other collections are also described in this paper incidentally: *Mirafra pœcilosterna jacksoni*, Kikuyu; *Bradyornis infuscatus seimundi*, Deelfontein Cape Colony; and *B. i. ansorgii* Catambella and Huxe. The last two occur in a monograph of the genus Bradyornis which is appended. The author's practice of citing two or more types is quite unnecessary and is the source of possible complications in the future. Sooner or later some one else must select one of them as *the* type.

Obituary. Philip Lutley Sclater. By A. H. Evans.— With Bibliography of 582 titles.

Brief Obituaries of Thomas Ayres and Dr. J. W. B. Gunning.

Bulletin of the British Ornithologists' Club.[1] Vol. XXXII. September, 1913.— This volume of 336 pages comprises the club's annual record of bird migration for the spring of 1912 and autumn of 1911. It follows the same general plan as the previous reports and contains a vast amount of data. It is possible, from the records received, to group the migrants into several classes according to the points at which they reach England, the Ring-Ouzel, Grasshopper Warbler, Pied Flycatcher and Land-Rail arriving solely on the western half of the south coast, while the Nightingale, Tree-Pipit, Red-backed Shrike, Wryneck and Turtle Dove come in on the south-east coast, etc. The most striking feature of the winter of 1911–12 was the unusual visitation of Little Auks.

Bulletin of the British Ornithologists' Club. No. CXC. October 24, 1913.— This number is devoted to a Guide to Selborne and a Synopsis of the Life of Gilbert White, by W. H. Mullens — prepared for the visit of the Club to Selborne which was given up on account of the death of Dr. Sclater.

Bulletin of the British Ornithologists' Club. No. CXCI. October 24, 1913.

Obituary of Philip Lutley Sclater.

W. R. Ogilvie Grant exhibited specimens of the rare Spitsbergen Ptarmigan, *Lagopus hyperboreus*.

Carduelis carduelis bermudiana was described as new by J. N. Kennedy, but the propriety of naming birds introduced by man and which had changed color slightly as has been the case with the European Goldfinch in Bermuda, was questioned by members.

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[1] Edited by W. R. Ogilvie Grant. Published by Witherby & Co., 326 High Holborn, London.

Hon Walter Rothschild discussed the relationship of various forms of Cassowary.

D. A. Bannerman described as new *Saxicola dacotiæ murielæ*, Allegranza Island, *Acanthis cannabina harterti* Lanzarote Island, Canary Islands. H. H. Harington presented a revised key to the species of *Turdinulus* describing as new *T. brevicaudus venningi* and *T. epilepidotus bakeri*, from the Southern Shan States, Burma.

E. Stresemann called attention to variation in House Sparrows, the English birds being slightly smaller than the Continental race.

British Birds.[1] Vol. VII. No. 5. October 1, 1913.

The Sequence of Plumages of the Rook. By H. F. Witherby (see p. 118).

British Birds. Vol. VII. No. 6. November 1, 1913.

The Red-throated Diver in its Breeding haunts. By Miss E. L. Turner. — A valuable contribution to the life history of this Loon with numerous half-tones from photographs.

Dr. L. Bureau's Work on the Partridge. By N. F. Ticehurst.— A review of 'L'age des Perdix. II. La Perdix rouge,' an exhaustive study of moult.

Recovery of Marked Birds.

The Avicultural Magazine.[2] Vol. IV. No. 11. September, 1913.

The Seed Snipe. By Hubert D. Astley.— Plate of *Thinocorus rumicivorus* and account of some live birds brought from Chili.

Nesting of the White Wagtail, *Motacilla alba*. By W. E. Teschemaker.

Nesting of Purple Sunbirds in Captivity. By E. J. Brook.

Some of My Sunbirds. By Alfred Ezra.

The Avicultural Magazine. Vol. IV. No. 12. October, 1913.

Colored plate of *Petrocincla cinchloryncha*.

Hunting Duck Eggs in the Marshes of Manitoba. By H. K. Job.

Longevity in Captivity. By A. G. Butler.— One Red-billed Weaver has lived in the author's aviary of over 18 years.

A Prairie Chicken raised from captive laid Eggs. By John C. Phillips.

Bird Notes.[3] Vol. IV. (n. s.) No. 8. August, 1913.

Some Interesting Birds. By W. T. Page, illustrations by H. Willford. — Admirable photographs of the Lesser Black-backed Gull, continued in Nos. 9 and 10 with illustrations of Terns and Cormorants.

An Island on the River Jhelum, Punjab. By H. Whistler.— Describes the nesting birds.

Bird Notes. Vol. IV (n. s.) No. 9. September, 1913.

Memories of a Trip in Argentina. By Mary C. Hawke.

Accounts of various birds in captivity in both numbers.

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[1] Edited by H. F. Witherby. Published by Witherby & Co., 326 High Holborn, London.

[2] Edited for the Avicultural Society by Hubert D. Astley. Published by West, Newman & Co., 54 Hatton Garden, E. C., London.

[3] Journal of the Foreign Bird Club. Edited by Wesley T. Page. Treasurer, Sydney Williams Holland Lodge, Edmonton, London, N., England.

The Austral Avian Record.[1] Vol. II. Nos. 2 and 3. October 23, 1913.

Notes on Billberg's Synopsis Faunæ Scandinaviæ. By G. M. Mathews and Tom Iredale.

Dates of Publication of Plates of the "Ornithology .... of the 'Coquille.'" By G. M. Mathews.

New Generic Names, with Some Notes on Others. By G. M. Mathews. — Twenty-seven new names proposed.

Additions and Corrections to my Reference List. By Gregory M. Mathews.— Five new names proposed and a long list of synonyms and changes.

The Emu.[2] Vol. XIII. Part 2. October 1, 1913.

A Commonwealth Collection. By A. J. Campbell.— Account of the egg collection of Mr. H. L. White, with three excellent color plates.

Description of a New Sericornis. By C. F. Cole.— *S. insularis* sp. nov. Forsyth Island, Bass Strait.

Birds of Moora (W. A.) and District. By C. L. E. Orton and P. T. Sandland.— Annotated list of 125 species.

The Black-eared Cuckoo (*Mesocalius palliolatus* Lath.). By P. A. Gilbert and H. Keane.— Its eggs are chocolate colored, closely resembling those of the Little Field Wren (*Chthonicola sagittata*) its most frequent host.

Some Swamp Birds. By A. C. Stone.

Bird-Life on White Island (N. 2). By W. R. B. Oliver.

Visit to Torilla Plains. By E. D. Barnard.

The Birds of Peel Island. By N. V. I. Agnew.— Annotated list of 76 species.

American View of the R. A. O. U. "Check-list."— This is an answer to the review in the July 'Auk', which naturally was not endorsed by the editors of 'The Emu.' We still maintain however that to have stability, nomenclature, in any branch, and in any country, must follow international rules and custom; and that in order to carry on the splendid work that they have accomplished in the past, and to make known to the world the ornithology of their most interesting continent, progressive Australian ornithologists cannot be hampered by any such list as that proposed by the R. A. O. U. Committee. The editors of 'The Emu' make one statement to which exception must be taken, i. e., "the reviewer has not had the same experience and knowledge as Australians of the practical application of trinomial methods." After serving for twelve years on the A. O. U. Committee on Classification and Nomenclature and having to pass upon the host of trinomial forms that have been proposed in America in that

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[1] Edited by Gregory M. Mathews. Published by Witherby & Co., 326 High Holborn, London.

[2] Organ of the Royal Australasian Ornithologists' Union. Edited by A. J. Campbell and Charles Barrett, Melbourne, Australia. London agents, Witherby & Co., 326 High Holborn.

time, one would seem to have had ample opportunity to judge of the desirability of the 'trinomial method.' But even though he is not entirely in sympathy with the extremists in matters of subdivision the writer strongly upholds the trinomial method as a most desirable and indispensable feature of nomenclature.

The Journal of the South African Ornithologists' Union.[1] Vol. IX. No. 1. July, 1913.

Egg Collecting in the Bushveld. By Austin Roberts.— An interesting account of the physical features of the 'bushveld' and of the nesting habits of upwards of 125 of its characteristic birds.

Additions to the List of Birds of the District of Matatiele E. Griqualand. By C. G. Davies.— Twenty-five species.

The White Stork in South Africa. By Alwin Haagner.

Note on a Three-toed Ostrich Chick. By John Hewitt.

Field Notes on Birds Observed and Collected in the Boror District of Portuguese East Africa. By F. V. Kirby.— Thirty-nine species.

The Nidification of the Crowned Francolin in Captivity. By A. K. Haagner.

Journal für Ornithologie.[2] Vol. 61. No. 4. October, 1913. (In German.)

Between Migration and Breeding-time in the Meander. A Contribution to the Ornithology of Asia Minor. By Hugo Weigold.

On a Collection of Birds from Mysol. By Erwin Stresemann.— An annotated list of 72 species. *Loriculus aurantiifrons batavorum* is described as new from Dutch New Guinea.

On the 1911 Migration of Nutcrackers in Schlesia. By Paul Kollibay.

An Assembling place for Cranes. By. E. Hesse.

Remarks on some Persian Birds. By N. Sarudny and M. Härms.

Journal für Ornithologie. Special Number 2. 1913.

Report of Bird Migration at Rossiten, 1911, Part 2, and 1912, Part 1. By Dr. J. Thienemann.

Ornithologisches Monatsberichte.[3] Vol. 21. No. 9. September, 1913. (In German.)

Bird life on the Rovuma. By L. Schuster.

Breeding Habits of the Tern. By J. Thienemann.— Based upon observations at Rossitten.

On *Parus bokharensis* Licht and its nearest allies. By N. Sarudny and M. Härms. *P. b. panderi* described as new.

Description of two New Birds collected by Drs. Bluntschli and Mr. Peyer on the island of Marajo at the Mouth of the Amazon. By H. Graf

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[1] Editors, Dr. J. W. B. Gunning, B. C. R. Langford and A. K. Haagner, Pretoria, Transvaal. London Agents, Witherby & Co., 326 High Holborn.

[2] Edited for the German Ornithological Society by Dr. A. Reichenow. L. A. Kittler, Agent, Leipzig.

[3] Edited by Dr. A. Reichenow. R. Friedländer and Son, agents, Berlin, N. W. 6, Karlsh. 11.

von Berlepsch.— *Amazona ochrocephala xantholæma* and *Zenaida jessieæ marajœnsis*.

On the North African Buzzard. By D. Kleinschmidt.

Ornithologisches Jahrbuch. Vol. XXIV. Nos. 3–4. May–August, 1913. (In German.)

On the Capture of a Jay-Cuckoo (*Clamator glandarius*) and a favorable Locality for the Observation of Bird Migration. By O. Reiser.

Journal Notes in Jerusalem. By P. E. Schmitz.

Journal Notes on the Oder delta Country and Lower Pomerania. By R. J. Fromholz.

On the Ornithology of the Island of Corsica. By A. Laubmann.— A fully annotated list of 40 species.

Ornithologische Monatsschrift.[1] Vol. 38. No. 8. August, 1913. (In German.)

A Sketch of the Bird-life of Plauen and Vicinity. By F. Dersch.

Woodpecker and Squirrel, with colored plate.

Ornithologische Monatschrift. Vol. 38. No. 9. September, 1913.

Ornithological Sketches from Memmert, 1912. By O. Leege.

Numerous notes on bird study and bird protection in these and also in No. 10.

Revue Francaise d'Ornithologie.[2] Vol. V. No. 54. October 7, 1913. (In French.)

The National Park. By L. Lavanden.— Its protection to birds.

The Truth about the Birds of Prey. By F. Daguin.

Revue Francaise d'Ornithologie. Vol. V. No. 55. November 7, 1913.

On Eagles observed in France. By E. Anfrie.

On the two new Birds of Paradise (*P. duivenbodei* and *P. raggiana sororia*). By A. Menegaux.— The latter proves = *P. intermedia* deVis, upon the relationship of the former several views are advanced.

Duration of Incubation in the Pigeons. By X. Raspail.

Ornithological Observations in the Vicinity of Setif, Algeria, 1895–1900 (concluded). By A. L. Charriere.

Ardea.[3] Vol. II. No. 3. September, 1913. (In Dutch.)

Ornithological Investigations in Steil in Omstreken (1908–1912). By P. C. Riotte (concluded).

The ' Strophe ' of the Meadow-Pipit. By H. Stadler and C. Schmitt.

Results of Bird-banding by the Museum of Leyden. By E. D. Van Oort.

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[1] Organ of the German Society for the Protection of Birds. Edited by Dr. C. R. Hennicke and Dr. O. Taschenberg. Agent Max Kretschmann, Creutz'sche Verlagsbuchlandlung in Magdenburg.

[2] Edited by A. Menegaux, 55 Rue de Buffon, Paris.

[3] Edited for the Netherlands Ornithological Society by L. F. DeBeaufort, A. A. Van Pelt Lechner and E. D. Van Oort. Published by E. J. Brill, Leyden.

Ornithological Articles in Other Journals.[1]

Calvert, E. W. Guelph Winter Birds, 1912–13. (Ontario Natural Science Bulletin, No. 8. 1913.)

Calvert, E. W. Migration Report of the Wellington Field Naturalists' Club. Guelph Ont., 1912. (Ontario Natural Science Bulletin, No. 8, 1913.)

Weston, F. M., Jr. and others. Notes on South Carolina Birds. (Bulletin of the Charleston Museum, Oct.–Nov., 1913.)

Chamberlin, E. B. Notes on the Breeding Habits of the Ruby-throated Hummingbird. (Bulletin of the Charleston Museum, Nov., 1913.)

Anderson, Peter. The Birds of the Island of Tiree. (Scottish Naturalist, Sept., Oct. and Nov., 1913.)

Patten, C. J. Asiatic Sky-Lark on Migration Obtained at the Tuskar Rock Light Station. (Zoölogist, Sept. 15, 1913.)

Selous, Edmund. A Diary of Ornithological Observation made in Iceland during June and July, 1912 — continued. (Zoölogist, November 15, 1913.)

Ingram, Collingwood. On the Marsh- and Willow-Tits of France. (Zoölogist, November 15, 1913.)

Farley, F. L. Is Bartram's Sandpiper Disappearing from the Prairies? (Ottawa Naturalist, Aug.–Sept., 1913.)

Speechly, H. M. *Tyrannus verticalis* for the fourth successive year at Pilot Mound, Man. (Ottawa Naturalist, Aug.–Sept., 1913.)

Stanwood, Cordelia J. The Home Life of the Red-breasted Nuthatch. (Nature and Culture, October, 1913.) — Another of the author's admirable and painstaking studies of nesting birds.

Stanwood, Cordelia J. A Tame Downy Woodpecker. (Nature and Culture, April, 1913.)

Heald, F. D., and Studhalter. Preliminary Note on Birds as Carriers of the Chestnut Blight Fungus. (Science, Aug. 22, 1913.) — The results of this investigation are by no means convincing. At any rate if spores during a wet period can be rubbed of the branches of the trees in such quantities, the millions that must be scattered by other agencies renders the part played by birds in their dissemination scarcely worth considering.

Guelph, G. P. Game Birds in New York State. (Forest and Stream, October 11, 1913.) — Contains records of shore birds in Lake Ontario.

Ingersoll, Ernest. Comfort in Old Books. (Forest and Stream, October 18, 1913.) — Refers to various 'bird books.'

Phillips, J. C. Reciprocal Crosses between Reeves's Pheasant and the Common Ring-neck Pheasant Producing Unlike Hybrids. (Amer. Nat.,

[1] Some of these journals are received in exchange, others are examined in the library of the Academy of Natural Sciences of Philadelphia. The Editor is under obligations to Mr. J. A. G. Rehn for a list of ornithological articles contained in the accessions to the library from week to week.

November, 1913.) — The birds could readily be separated and appeared like two distinct species, those from the male Reeve's and female Ringneck being uniformly lighter than those from the other combination.

Macginley, P. J. Notes from the Skelligs. (The Irish Naturalist, November, 1913.)

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Nesterov, P. V., and **Nikandrov, J. N.** On the Migration and Nidification of Birds in the vicinity of Pskov. (Ann. Mus. Zool. Acad. Imp. St. Petersburg, XVIII, pp. 102–124.) — Text in Russian, but with tables giving dates for 15 years, and technical names of the species.

Menzbier, M. Contributions to Russian Ornithology.— The Question of the Relationship of *Aquila fulvescens* Gray. (Bull. Soc. Imp. Nat. Moscow, 1911, No. 4, pp. 287–302 (1913.) — In German.

Suschkin, P. P. The Avifauna of the Minussensk Territory, the Western part of the Sajan Mountain and Urjanchan Land. (Bull. Soc. Imp. Nat. Moscow, 1912, pp. 198–400 (1913).) — An extended discussion of the ranges of the species and tables of occurrence for various allied regions.

Schuster, W. The Breeding of *Aegialites minor* and *Actitis hypoleucos* in Hesse (Bericht Oberh. Gesell. Nat.- und Heilkunde zu Gressen. 1912. V, pp. 136–138, 1913.)

Rothschild, W., and **Hartert, E.** List of the Collections of Birds made by Albert S. Meek in the Lower Ranges of the Snow Mountains, on the Erlanden River, and on Mount Goliath during the years 1910 and 1911. (Novitates Zoologicæ, October, 1913.) — This paper presents the ornithological results of Mr. Meek's travels in New Guinea which he has already described in his book 'A Naturalist in Cannibal Land.' 229 species are listed of which the following are here described as new: *Astur melanochlamys schistacinus*, Mt. Goliath; *A. cirrhocephalus papuanus*, Snow Mts.; *Pœcilodryas albonotata griseiventris*, Mt. Goliath; *P. leucops nigro-orbitalis*, Snow Mts.; *Machærirhynchus nigripectus saturatis*, Mt. Goliath; *Sericornis arfakiana oorti*, Bihagi; *S. meeki*, Mt. Goliath; *Pitohui meeki*, Mt. Goliath; *Philemon novæguineæ brevipennis*, Snow Mts. also *Ailurædus buccoides oorti* from Waigiu.

Hesse, Erich. Review of a Collection of Birds from the Altai. A Contribution to the Ornithology of Interior Asia. (Mitteil. Zool. Mus. Berlin. VI, pp. 353–454, June, 1913.)

Brünig, C. The Migration of Nutcrackers (*Nucifraga cariocatactes.*) (97. Jahr. Natforsch. Gesell. Emden., 1912 (1913.))

Hammling, J. Ornithological Observations and Notes from the Province of Posen. (Zeitschr. Naturwis. Abteil., XX, Vol. I. No. 6. 1913.)

Seth-Smith, D. Note on breeding of hybrids between Peacock and domestic fowl, and between Peacock and Guinea. (Abst. Proc. Zool. Soc. London, No. 125, Nov. 11, 1913.)

Publications Received.— Bailey, Vernon. Life Zones and Crop Zones of New Mexico. Biol. Survey U. S. Dept. of Agriculture, North American Fauna, No. 35. September 5. 1913.

Brooks, Earle A. Birds of West Virginia. (Second Biennial Rept. of Forest, Game and Fish Warden, J. A. Viquesney, for 1911–12. 1913.)

Finley, W. L. Game and Fish Protection and Propagation in Oregon, 1911–1912 (1913.)

Gain, L. The Penguins of the Antarctic Regions. (Smithsonian Report for 1912. 1913.)

Gifford, E. W. The Birds of the Galapagos Islands, with Observations on the Birds of Cocos and Clipperton Islands (Columbiformes to Pelecaniformes.) (Proc. Cal. Acad. Sci., 4th series, Vol. II, Pt. 1. August 11, 1913.)

Grinnell, J., and Swarth, H. S. An Account of the Birds and Mammals of the San Jacinto Area of Southern California with Remarks upon the Behavior of Geographic Races on the Margins of their Habitats. (Univ. of Cal. Publ. in Zool., Vol. 10, No. 10. October 31, 1913.)

Grinnell, J. Call-Notes and Mannerisms of the Wren Tit. (The Condor, XV. September, 1913.)

Gurney, J. H. The Gannet. A Bird with a History. Witherby & Co., 326 High Holborn, London. 1913. Price 25s.

Howell, A. H. Descriptions of Two New Birds from Alabama. (Proc. Biol. Soc. Wash., XXVI. October 23, 1913.)

Kirkham, Stanton Davis. North and South. Notes on the Natural History of a Summer Camp and a Winter Home. G. W. Putnam's Sons, New York. 1913. $1.75 net.

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Mearns, E. A. (1) Descriptions of Five New African Weaver Birds of the Genera Othyphantes, Hypargos, Aidemosyne, and Lagonosticta. (Smithson. Misc. Coll. Vol. 61, No. 14. September 20, 1913.) (2) Descriptions of Six New African Birds. (*Ibid.*, Vol. 61, No. 11. August 30, 1913.)

Palmer, T. S., Bancroft, W. F., and Earnshaw, F. L. Game Laws for 1913. (Bulletin of the U. S. Dept. of Agriculture No. 22. October 15, 1913.)

Pearl, Raymond. (1) The Biology of Poultry Keeping. (Ann. Rept. Mavin Agric. Exper. Sta. for 1913, pp. 101–120, July, 1913.) (2) The Measurement of the Intensity of Inbreeding. (Bull. 215, Univ. of Me. Agr. Exp. Sta. August, 1913.)

Rathbun, Richard. A Descriptive Account of the Building Recently Erected for the Departments of Natural History of the United States National Museum. (Bull. 80, U. S. Nat. Mus., 1913.)

Sage, John H. and Bishop, Louis B., assisted by Bliss, W. P. The Birds of Connecticut. (Bull. No. 20, State Geol. and Nat. Hist. Survey. November, 1913.)

Shufeldt, R. W. (1) The American Grouse and their Identification.

(Outer's Book, October, November and December, 1913.) (2) Notes on Buzzards and Ravens. (The Guide to Nature. September, 1913.) (3) The National Zoological Garden. (Pop. Sci. Monthly. November, 1913.) (4) On the Patella in the Phalacrocoracidæ. (Proc. Zool. Soc. London, September, 1913.) (5) On the Comparative Osteology of Cereopsis novæhollandiæ. (The Emu, April, 1913.) (6) Fossil Feathers and Some Heretofore Undescribed Fossil Birds. (Jour. of Geology, Vol. XXI, No. 7. October–November, 1913.)

Stanwood, Cordelia J. (1) A Tame Downy Woodpecker. (Nature and Culture, Vol. V, No. 11. April, 1913.) (2) The Home Life of the Red-breasted Nuthatch. (*ibid.*, Vol. VI, No. 1. October, 1913.)

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Trevor-Battye, Aubyn. Camping in Crete. With Notes on the Animal and Plant Life of the Island. Witherby & Co., 326 High Holborn, London. 1913. Price 10s. 6d. net.

Todd, W. E. Clyde. Preliminary Diagnoses of Apparently New Birds from Tropical America. (Proc. Biol. Soc. Wash., Vol. XXVI. August 8, 1913.)

Tyler, John G. Some Birds of the Fresno District, California. Pacific Coast Avifauna, Number 9. Cooper Ornithological Club, Hollywood, Cal. October 1, 1913. $1.50.

United States National Museum. Report for the Year ending June 30, 1912. 1913.

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Current Items of Interest (Aud. Soc. Dist. of Columbia), No. 19, October 16, 1913.

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Forest and Stream, LXXXI, Nos. 11–25.
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CORRESPONDENCE.

Albatross Specimens.

EDITOR OF 'THE AUK:'

During the past few years, I have been studying the comparative anatomy of the Tubinares with considerations of bird anatomy in general. I am in great need of specimens of *Diomedea nigripes*, the Black-footed Albatross, and I could use five or six specimens to advantage. This bird is stated to be common on the North Pacific Ocean. I would also be glad to have specimens of any other albatrosses. Any suggestions as to how I may obtain the desired material will be very gratefully received. I shall be glad to pay a reasonable price for the material.

Specimens collected should be placed in either formalin or alcohol but I prefer formalin which is also cheaper and easier to carry on a collecting trip. The formalin may be made up as a 10% solution, i. e., 9 parts of water with 1 part of formalin or formol as it is often called. A solution of

even only half this strength will do fairly well for a few days. One incision only which may be about three inches long, should be made in the ventral abdominal wall just to one side of the median line. The bird should then be placed in the formalin solution which should if possible be several times the bulk of the bird. If large containers are not available, a smaller amount of the solution may be used but it should be changed twice during the following week. Specimens should be kept in the formalin solution for a week or more, after which they may be wrapped for shipment with cotton which has been soaked in the same solution. Oiled paper or something equally impervious should cover this, and the package may then be packed in a box for shipment. Shipments should be addressed care of the Laboratory Supply Department, Room 10 Botany Building, University of Chicago.

Very truly yours,

R. M. Strong.

Hull Zoölogical Laboratories, The University of Chicago.
November 3, 1913.

'Teaching A Bird Course.'

Editor of 'The Auk:'

In the Review of my paper on 'Teaching a Bird Course' which appeared in the January, 1913 'Auk,' the reader is led to believe that the course in Ornithology which I give at the University of Chicago is designed only for those who wish to learn to identify birds. This interpretation of my paper is probably due to the fact that most of my discussion dealt with pedagogical problems of field work and identification of specimens. As a matter of fact, the lectures which occur twice a week, cover a field almost equal in credit value to the balance of the course. Taxonomy occupies a very small place in the lectures. They are devoted primarily to bird morphology and physiology, including also such topics as migration and behavior.

Very truly yours,

R. M. Strong.

The University of Chicago,
November 3, 1913.

NOTES AND NEWS.

ALFRED RUSSEL WALLACE, D. C. L., O. M., F. R. S., an Honorary Fellow of the American Ornithologists' Union, died on November 7, 1913, in the ninety-first year of his age, and after sixty-four consecutive years of scientific activity.

Wallace, while standing in the highest rank among ornithologists, entomologists and botanists is best known in the broader field of philosophy and evolutionary thought, where his name is closely linked with those of Lyell and Darwin; and especially will he ever be remembered for his joint publication with Darwin of their independent discovery of the theory of Natural Selection. Wallace was typical of a group of scientific men of the last century, which may well be known by the name 'naturalists,' among which he ranked at the very top and of which he was the last survivor.

In the present days of specialization it seems impossible for men of this type to develop and it is doubtful if the world will ever again see men of such broad learning as those who contributed to the fame of what Wallace himself has termed 'the Wonderful Century.'

He was born in the village of Usk in Monmouthshire, England, on January 8, 1823, the son of Thomas Vere Wallace and Mary Anne Grennell. He attended grammar school until about thirteen years of age and apparently received much educational benefit from association with his father who was a man of literary tastes then engaged in tutoring.

The family being in poor circumstances Wallace was taken from school and for seven years pursued the study and practice of land surveying with his brother. His attention had already, through some of his early reading, been directed to plants, and he now in his spare time amused himself by collecting specimens of the wild flowers of the vicinity of the towns where he lived and to name them as well as he could from certain inadequate books on botany of which he had come into possession. He says in his autobiography of these early collections, "I experienced the joy which every discovery of a new form of life gives to the lover of nature, about equal to the rhapsodies which I afterwards felt at every capture of a new butterfly on the Amazon, or at the constant stream of new species of birds, beetles and butterflies in Borneo, the Moluccas and the Aru Islands."

Surveying not proving profitable, he gave it up when he became of age and obtained a position as a teacher in a school in Leicester. Here he met Henry W. Bates, a man of kindred tastes, who had a collection of British beetles which amazed Wallace, as he had no idea that such a variety of these insects occurred in England. He at once became an ardent entomologist and advanced in his knowledge of this branch of natural science as rapidly as he had in botany.

Influenced by the perusal of Edward's 'Voyage up the Amazon' Wallace

and Bates decided upon an expedition to Brazil for the collecting of scientific specimens. They arranged with Samuel Stevens to act as agent, in receiving and disposing of their collections and Wallace set about practicing the shooting and skinning of birds, the study of ornithology having apparently failed to attract him prior to this time. They sailed on April 20, 1848, and after a voyage of twenty-nine days landed at Para.

Wallace remained in Brazil until 1852, making excursions partly in conjunction with Bates, partly on his own account. He ascended the Rio Negro to the second cataract at Juaurité on the river Uaupes, farther than any other explorer succeeded in penetrating until 1881. He made extremely valuable collections especially of insects and birds, but being shipwrecked on the voyage home, he lost all of his private collections, and apart from his experience, profited only by the proceeds of the material sold for him by Stevens.

He had however made quite a reputation as a collector and explorer and had contributed a paper to the Zoological Society on the Umbrella-bird of the Amazon, so that he gained the entré to scientific circles in London. During the next two years he spent most of his time at the British Museum familiarizing himself with the literature and collections bearing upon the natural history of the East Indies, whither he planned to direct his next explorations. He secured a copy of Bonaparte's 'Conspectus Avium' in which he marked all the East Indian birds adding on the margins descriptions of additional species, as he had done with his first book on botany at the outset of his natural history studies. He was thus, he says, "able to identify nearly every species" that he found, and he adds, "no one who is not a naturalist and collector can imagine the value of this book to me." He sailed for the East Indies in 1854.

Almost at once he began sending back not only collections of birds and insects but contributions to various scientific journals treating of a variety of subjects, but especially of comparisons of the faunas of different islands, and upon various topics bearing upon the origin and relation of species. In 1858 from the island of Ternate, he wrote his famous letter to Darwin, outlining the theory of Natural Selection and from then on this subject was ever uppermost in his mind. While his knowledge of the bird life of the East Indies at this time was greater than that of any other naturalist, he described but few species, passing rapidly from the systematic view of nature to the broader philosophical attitude which grew out of it and which characterized his future life with ever increasing force. He says himself: "I had in fact been bitten by the passion for species and their description and if neither Darwin nor myself had hit upon Natural Selection I might have spent the best years of my life in this comparatively profitless work. But the new idea swept all this away. I have for the most part left others to describe my discoveries and have devoted myself to the great generalizations which the laborious work of species-describers has rendered possible."

For eight years he continued his explorations extending them to the Aru Islands and the coast of New Guinea in the pursuit of Birds of Paradise.

In 1862 he returned to England, his mind filled with ideas and data for the great works that he was later to produce. First appeared 'The Malay Archipelago' his 'journal of researches' as it has been termed, dealing with zoölogy, botany, anthropology and physical geography as only the master hand can deal. Passing over the various publications on Natural Selection and kindred subjects which have been covered by abler reviewers in various sketches of the life and works of the great naturalist, we must call attention to two works which deal more directly with ornithology, viz. the 'Geographical Distribution of Animals', 1876, and 'Island Life', 1881, which are really the pioneer treatises on zoogeography. Here his earlier announcement of the imaginary line between Bali and Lombok separating the Indian and Australian zoölogical regions — since known as 'Wallace's Line' — is fully elaborated, while the zoölogical regions named by Sclater are adopted and amplified.

His ornithological communications to 'The Ibis' and other journals from 1850 to 1875 are particularly noteworthy, covering various aspects of the science. In one paper dealing with the arrangement of the families of birds published in 1856 he arrived at the same conclusions as to the proper limitation of the Passeres from a study of external characters alone as were later reached by avian anatomists. This was a matter of much gratification to Wallace and, in commenting upon the work of the anatomists, he, called attention to his earlier publication and emphasized the premises upon which his conclusions were based. Indeed he seems to have been rather impatient of minute anatomical investigations, preferring to base his generalizations upon the study of external characters, and the grosser relations of animals and plants to their environment.

Wallace married, in 1866, the daughter of Mr. William Mitten and spent the remainder of his life in England except for a visit to Canada and the United States in 1886 and trips to Switzerland, Scotland, etc.

His literary activity continued almost to the time of his death and his last volume 'The World of Life' published in 1911, to quote from Prof. Osborne "gives as clear a portrayal of his final opinions as that which his first essay of 1858 portrays of his early opinions."

In considering Wallace as an ornithologist one is impressed with the great possibilities which the science contains, and the varying degrees to which they are developed by different workers in the field, each according to his ability. There is the painstaking observer to whom generalization is impossible and who often fails to distinguish between that which is worthy of record and that which is worthless; the specialist who devotes all his resources to one limited field, species-description, anatomy, detailed-distribution or what not, and is often blind to anything beyond; and finally the broad minded philosopher to whom ornithology is but one of many fields from which to glean the facts that are stored away in his mind to form the basis for those generalizations which are to revolutionize scientific thought. We cannot limit ornithology to any one of these, each contributes to the measure of his ability, and the fact that Alfred Russel Wallace drew

his inspiration from other fields as well, renders his loss to ornithology none the less.—W. S.

Dr. Ora Willis Knight, a member of the American Ornithologists' Union, died on November 11, 1913, from double pneumonia.

He was born in Bangor, Maine, July 15, 1874, son of George Willis and Nellie Ada (Blood) Knight. He attended the public schools of Bangor and in California, and graduated with honors at the University of Maine (then Maine State College), receiving the degree of B. S. in 1895. He continued to pursue post-graduate studies in chemistry at the University and received the degree of M. Sc. in 1897. While in college he was Sergeant and Second Lieutenant of Co. A., Coburn Cadets and on graduation, was recommended to the Adjutant General for excellence in military scholarship.

He was assistant in Natural History at the University during his post-graduate work and then became assistant chemist at the Maine Agricultural Experment Station. In 1903 he was appointed state assayer and at the same time entered into private business in the same field. He was chemist for the Lackawanna Foundaries and several other concerns and as a consulting chemist and microscopist had but few equals. He did much analytical work for prominent physicians, and came into prominence before the public as an expert in important court cases. He was sure of his ground in such cases and was ever zealous for right and justice. In recognition of his attainments Dr. Knight received the degree of Doctor of Science from his university in 1909, and was honored with the highest emblem of the Phi Kappa Phi Society of which he was a member.

Dr. Knight was married, very happily, August 11, 1899, to Miss Minnie Gertrude McDonald of Bangor, who has ever been an able assistant in his undertakings. In 1911 he removed from Bangor to Portland where he built a residence.

From early boyhood Dr. Knight was interested in birds and ornithology was always his pet hobby. He was elected a member of the Maine Ornithological Society in 1895, and was an active participant in the meetings, holding various offices and contributing many valuable papers to the 'Journal' of the society. He was also an expert and painstaking photographer and his illustrated lectures on bird life were always enjoyable. In 1897 the University of Maine published as Bulletin No. 3, his 'A List of the Birds of Maine' and in 1908 he published his portly volume 'The Birds of Maine.' These books constitute our authoritative works on the birds of the state.

Dr. Knight was elected an Associate Member of the American Ornithologists' Union in 1893 and a member in 1907 and was a frequent contributor to 'The Auk.'

His scientific activities were not however confined to ornithology. He possessed a thorough knowledge of botany and had formed a nearly complete herbarium of the plants of Maine, which he has bequeathed to the

Smithsonian Institution. He was a member and officer of the Josselyn Botanical Club and also a member of the American Chemical Society. He had formed a scientific library which he left to the Bangor Public Library.

In the death of Dr. Knight science has lost a most promising student and a large circle of associates, a valued friend. He had a very high sense of honor and was a noble example of true manhood. He was a deep student of human nature and weighed very carefully those with whom he came in contact. He did not make close friends as readily as some, but once he counted anyone a friend, he was his staunch supporter, and the word friend had a deep meaning to him.

The writer for many years has enjoyed his close friendship and has had the pleasure of many days association with him, wading the Orono Bog in the haunts of the Yellow Palm Warbler, or passing pleasant evenings in his home or in his chemical laboratory. To him Dr. Knight's death comes as an irreparable loss.—J. M. S.

FRED. BENJAMIN SPAULDING, an Associate of the American Ornithologists' Union, died on October 22, 1913, after a short and painful illness. He was born in the town of Lancaster, New Hampshire, on the 7th of June, 1867, and was the son of William C. and Harriet S. Spaulding.

His boyhood days were spent on a typical New England farm nestled close to the foot hills of the White Mountains. He attended the public school and proved a good student and on the expiration of his study there he entered the Lancaster Academy. On leaving the Academy Mr. Spaulding was employed by Frank Smith & Co., for several years and then entered the Eastman Business College. Here he learned practical business methods and upon leaving returned to Lancaster, where, in 1899, he joined with Mr. C. Moore in establishing a flour and grain business, of which he later acquired entire control.

Mr. Spaulding's fellow townsmen acknowledged his business qualities and he served terms as their Selectman, and was sent to the Legislature, in 1910, where he made an enviable record.

He married on June 7, 1892, Miss Hattie N. L. Connor and this union proved a very happy one, blessed with two children.

Students of bird life and lovers of the out door world have experienced a great loss in the death of Mr. Spaulding. He was a man loved by many and a model for field workers to follow, making a careful, studious, and conservative observer of nature. I recall with pleasure a few weeks spent with him at the delightful home which he and his wife made the living example of the word hospitality. During the bright days spent with him we were constantly in the field and each day he unfolded the home life of some avian resident that heretofore I had known only as a migrant. It is a pity more observers are not of his type. His idea was not only to compile a local list but to know each bird's household as his own.

Among the interesting results shown by his careful study are several

records for his state including the breeding of the Hudsonian Chickadee. Each year many an ornithologist journeyed to his hospitable home and time will never erase the grateful memory of those visits.

Besides his association with the A. O. U. he was a member of the Cooper Ornithological Club and the Maine Ornithological Society.— H. T.

Dr. Fredericus Anna Jentink, director of the Leyden Museum and well known as a writer on mammals, especially on those of the Malay and Papuan Islands, died on November 4, 1913, in his sixty-ninth year. He was well known to ornithologists as editor of 'Notes from the Leyden Museum.'

Dr. J. W. B. Gunning, president of the South African Ornithologists' Union and director of the Transvaal Museum and Zoological Gardens, died in Pretoria, June 23, 1913. Dr. Gunning was born at Helversum, Holland, September 3, 1860, and came to South Africa in 1884, practicing medicine in the Cape Colony until 1892 when he was appointed director of the newly formed museum at Pretoria. It was largely through his efforts that the Zoological Garden was established and he was also active in founding the S. A. Ornithologists' Union.

Dr. T. S. Palmer furnishes the following summary of Bird Protective Legislation for 1913, in continuance of his report in 'The Auk' for April, 1913, p. 321.

Now that the legislative record is closed a hasty review reveals the fact that about 200 new game laws were enacted during the year. While the number of statutes is less than that in 1911, the importance of the legislation is probably greater than that of any previous year. Of chief interest are the three Federal laws regulating protection of migratory birds, prohibiting importation of plumage, and the Senate Resolution authorizing treaties for the protection of birds with foreign Governments.

The migratory bird law was approved on March 4 and the regulations for carrying it into effect were duly prepared by a Committee consisting of T. S. Palmer, A. K. Fisher, and W. W. Cooke. These regulations were published on June 23, were later revised and adopted by the Department, and took effect when approved by the President on October 1. A beginning has been made in the herculean task of carrying the regulations into effect. The country has been divided into 13 districts and the organization of the field force in about half of these districts is now under way. On account of the small appropriation for enforcement, the main reliance is upon cooperation with State officials. Each district is in charge of an experienced Inspector appointed by the Department and from three to seven wardens are appointed by the Department on recommendation of the respective game commissioners for cooperative work from each of the States. This arrangement will provide a skeleton force of about 200 or 250 men distributed among the various States. A Chief Warden, six Inspectors and about 75 Wardens are already in the field. The work naturally differs in the various districts. In the one comprising the Middle

States very gratifying results have been obtained in law enforcement particularly in New Jersey and in Maryland at the head of Chesapeake Bay; in the Northwest district special attention has been given to educational work and to stopping the hunting on the Mississippi River. Preparations are now being made to secure certain amendments in the laws of the States whose legislatures convene in January so as to make the local laws conform with the regulations and thus avoid as far as possible any conflict in the close seasons under the State and Federal statutes.

The plumage provision in the Tariff Bill which owes its origin to a suggestion by Mr. Henry Oldys was actively championed by the National Association of Audubon Societies under the guidance of Secretary T. Gilbert Pearson and by the New York Zoological Society under the direction of Dr. W. T. Hornaday. The provision in the form proposed by Doctor Hornaday passed the House without change on May 8, but in the Senate was amended by the Finance Committee so that its effectiveness was largely destroyed. By action of the Democratic caucus on September 2, the proposed amendment was abandoned and the House provision was restored. The bill passed a few days later and was approved on October 3. The Treasury Department immediately enforced the plumage provision in the case of plumage worn by travelers as well as in the case of feathers imported for sale, and notwithstanding vigorous protests, all persons arriving at ports of entry with prohibited plumage either in trunks or on their hats, were compelled to relinquish such trimmings or to return them to the port of shipment.

A Senate Resolution authorizing the President to negotiate treaties with foreign Governments for the protection of birds was passed on July 7, 1913. It is to be hoped that a convention may be arranged with Canada at an early date for the better protection of migratory birds.

From an ornithological standpoint the most important State laws were those in Pennsylvania prohibiting the sale of aigrettes and certain other imported plumage after July 1, 1914; the comprehensive Florida statute providing for a game commission, a license system, and the repeal of all local laws; the special law in Florida removing Robins from the game list; and the establishment of 15 game preserves in the United States and four in Manitoba. Provision for enforcing the game laws was assured through the adoption of the resident hunting license system in Delaware, Florida, Ohio, and Pennsylvania. In Illinois, Montana, Oklahoma, and South Dakota, the warden work was reorganzied and single commissioners were replaced by a Board. In Ohio an Agricultural Commission replaced several former State departments and the game warden service was placed under its charge. In Connecticut the Fish and Game Commission was increased from three to eight members, and in New Hampshire the Board of Fish and Game Commissioners was replaced by a single game commissioner.

Colorado was the only State which extended the open season for waterfowl in the spring but this action was largely offset by the Federal Regula-

tions. Three States, Connecticut, New Jersey, and Vermont, withdrew protection from the European Starling and authorized destruction of the bird under certain conditions. In California several important changes were made, such as strengthening the plumage law, and protecting the Band-tailed Pigeons, rails, and smaller shorebirds but some of the bills failed to receive the approval of the Governor or were subject to referendum. In Vermont the restriction on the number of permits to collect birds for scientific purposes in force at any one time was removed. The interest in bird reserves was well illustrated in Wisconsin whose legislature memorialized Congress to set aside certain islands in the Great Lakes for the purpose of establishing bird reservations to be ultimately placed in charge of the States when they were ready to assume the expenses of maintenance. On the whole, the legislative record is highly satisfactory and shows substantial progress.

In view of the splendid results attained during the past year in the campaign against the feather-trade, it seems high time that bird protectionists take up another phase of the subject that comes much nearer home to every household in this country than does the killing of plume birds. This is the cat question. There is I think no doubt that for years past the greatest destructive agency to our smaller song and insectivorous birds has been cats.

In an editorial in 'Forest and Stream' for November 15, 1913, that is well worth reading, the subject is taken up from the standpoint of the sportsman and the destruction of young and adult quail effected by cats is rated as great as that from any other agency. "The English Keeper," the writer says, "well understands the injury done in the preserves by the domestic cat and wages against it a war as bitter, and as uncompromising, as that which he carries on against the stoat or any of the hawks."

The number of stray cats at large in the United States is enormous. It is stated in 'Bird Lore' that the number put out of existence in New York City by the Society for Prevention of Cruelty to Animals during the first nine months of 1905 totaled, 53,938! The stray cats are usually the worst offenders and if means could be adopted to effect their slaughter and to instruct people in the danger that they inflict upon bird life by allowing cats to run wild and leaving them behind when they move away, some good would be accomplished. The whole question of the economic value of the cat it seems to us would be a valuable line of investigation. If the destruction of mice offsets the destruction of game and insectivorous birds then the cat deserves consideration but if the keeping of cats is to be regarded as merely a 'luxury' or if they are proven to be more noxious than beneficial to wild-life then their possession should be guarded with stringent restrictions, embodying registration or taxation.

In 'The Warbler' (Vol. VII, 1913) Mr. G. K. Noble states that stray cats originally brought out to Muskeget Island to keep the rats out of hunters' shacks are playing havoc with the young terns in the protected colony although the warden is using every effort to exterminate them.

In city yards where wild birds are rare and cats abundant the destruction of transients which happen to pause there during their migration is very great as any one knows who makes a study of city bird-life.

This subject is by no means an old one and has been agitated frequently before but apparently with no definite action.

Is it not time that the sportsmen, the Department of Agriculture and the Audubon Societies join forces in giving the cat question serious attention?

In the November number of 'British Birds' Mr. H. F. Witherby states that he received a letter from Mr. A. C. Theron dated from "Riet Vallei, District Lindley, Orange Free State," stating that a Swallow had been captured bearing a ring with his name and address. As Mr. Theron gave neither the number of the ring nor the date of capture he asked him for these particulars and received a reply and the ring itself. The ring is number E937, and Mr. Theron stated that the bird was captured at Riet Vallei on March 16th, 1913, and adds, "I do not know when it arrived." This ring was placed on a nestling Swallow by Mr. R. O. Blyth at Skelmorlie, Ayrshire, Scotland, on July 27th, 1912.

In a recent number of the Austral Avian Record (Vol. II, p. 61) Mr. Gregory M. Mathews brings up a question of nomenclature which is perhaps the most serious that remains to be settled, i. e., the so called 'one-letter difference". He says, "It is well known that the code of the American Ornithologists' Union differs from the International Code, in that the latter would compel the usage of 'one letterism' in differentiating valid generic names whereas the former does not." He goes on to say that the A. O. U. "have subscribed to the International Commission's Opinions while not observing the Code," and that they hope to amend it to agree with their own, adhering in the interval to their own rules. He further adds that while the result is quite speculative "the trend is in favor of the Americans."

The above is quite unintentionally a little misleading, due to the ambiguity or indefiniteness of the International Code upon the point in question. It is touched upon in the recommendations to Article 36 as follows, "It is well to avoid the introduction of new generic names which differ from generic names already in use only in termination or in a slight variation in spelling which might lead to confusion. But when once introduced such names are not to be rejected on this account." "The same recommendation applies to new specific names" etc. The latter clause of the first sentence sounds like a rule but I am informed by the Secretary of the Commission that it "is a recommendation not a rule." In other words the Commission has not yet been able to come to a final vote on this matter, although as Mr. Matthews further states in his article quoted above, the recent Opinions of the Commission "suggest that 'one-letterism' will be abolished," that is to say that names differing only in termination and other slight variations in spelling shall be regarded as identical.

In revising its Code the A. O. U. Committee recognized the great difficulties involved in this problem. On the one hand is the confusion of having a number of names so nearly alike that it is difficult to distinguish them either by sight or sound, and on the other the difficul y of deciding just how great a difference in spelling shall constitute a recognizably different name. The only method that appeared practical was to state certain classes of differences which are to be recognized as establishing different names in nomenclature and certain others which are not. This was done in remarks under Canon XXX, and the classes cover probably a large majority of the cases that will occur.

It will thus be seen that the A. O. U. Committee did not repudiate the International Code but only a 'Recommendation' of the International Commission. They found themselves able to go further in the matter of an official vote on this question than the International Commission did and embodied in a 'Canon' what the latter body was compelled to leave an open question. This in no way affects ultimate agreement upon any more definite method of settling the question that may be suggested in the future.

In a similar way the A. O. U. Committee found the 'elimination method' of fixing genotypes as set forth in the International Code indefinite, inasmuch as it left the method of applying elimination entirely to personal opinion, with necessarily conflicting results. The A. O. U. Committee therefore adopted in their revised Code the 'first species method' which yielded definite results. The International Commission recognized the weakness of elimination and at their next meeting adopted the method of 'subsequent designation.' This was at once substituted by the A. O. U. for the 'first species method' in the interests of uniformity both being *definite* methods.

This statement is made to show that instead of being antagonistic the history of the two codes has ever been one of harmony. Indeed so closely are they in agreement that the A. O. U. has never felt the necessity of adopting by name either the International Code or the Opinions, the latter however have been regularly accepted by the Committee so far as they affected the American Check-List, as fast as they were published.

Messrs. Witherby & Co., 326 High Holborn, London, W. C. announce the publication of a work on 'Indian Pigeons and Doves' by E. C. Stuart Baker, with twenty-six coloured plates and over 200 pages. This will be a companion volume to Mr. Baker's 'Indian Ducks and their Allies.' Price £2, 10s. net.

The "Chicago Ornithological Society" was organized by ornithologists of Chicago and its vicinity in December, 1912, with the following officers: President, Dr. R. M. Strong; Vice-presidents, Mr. L. J. DeVine and Mr. G. L. Abbott; Secretary-Treasurer, Mr. Ralph Chaney; Corresponding Secretary, Mrs. P. B. Coffin. The society has undertaken among other

projects an ornithological survey of the region about Chicago. Persons who may be interested in becoming members of the society are invited to send their names to the chairman of the membership committee, Mr. J. L. DeVine, 5338 Woodlawn Ave., Chicago. Meetings are held at 8:15 P. M. on the second Tuesday in each month in Room 24, Zoology Building, The University of Chicago.

At the annual meeting of the American Ornithologists' Union in November last it was decided to increase the membership of the Committee on Classification and Nomenclature from seven to eleven with the object of having it organize as two subcommittees, one of four members to consider matters of nomenclature, the other of seven members, to cover systematic and geographic questions, especially the acceptance or rejection of proposed new forms.

The president Dr. Frank M. Chapman has reappointed the old committee consisting of J. A. Allen, William Brewster, Jonathan Dwight, Jr., C. Hart Merriam, Charles W. Richmond, Robert Ridgway and Witmer Stone; and as the four additional members he has named, Joseph Grinnell, E. W. Nelson, Harry C. Oberholser and T. S. Palmer.

At the recent meeting of the American Ornithologists' Union in New York City, the advisability of changing the time of meetings from fall to spring was considered. This innovation was favored for two principal reasons: First, to make it possible for those members to attend who, for business or other reasons, were unable to leave home in the autumn. Second, members residing on the Pacific Coast are very anxious that the stated meeting in 1915 be held in San Francisco while the Worlds Panama-Pacific Exposition is in progress. It was the consensus of opinion that spring was the most favorable time to hold this meeting and to successfully carry out the plan, it was thought advisable to allow at least a year to intervene between the Washington and San Francisco meetings. This would give members throughout the country ample time to plan in advance for the journey across the continent. In this connection it is to be remembered that the expense of the transcontinental trip will be greatly reduced if a considerable number of members and their friends attend.

With the above plan in mind, the Committee of Arrangements has decided to name Easter week, beginning with April 6, 1914, as the best time for the Washington meeting.

The local Committee recognizes the fact that the interval between the meeting held in New York in November and the meeting to be held in Washington in April is short, but, notwithstanding this, believes that the novelty of a spring meeting and the manifold attractions of Washington in April, when the city is at its best, will secure a full attendance.

CAPRIMULGUS ELEANORAE PHILLIPS